



US Army Corps
of Engineers
Savannah District

Fort Bragg North Carolina

Solicitation No.

DACA21-03-R-0033

Indefinite Delivery Contract for Roof Construction

FY-03, Line Item 3119000

February 2003

**THIS SOLICITATION IS UNRESTRICTED PURSUANT TO THE
"BUSINESS OPPORTUNITY DEVELOPMENT REFORM ACT OF 1988"
(PUBLIC LAW 100-656)**

**U.S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
100 WEST OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3640**

TABLE OF CONTENTS

00010	Solicitation/Contract Form and Bidding Schedule
00100	Instructions, Conditions, and Notices to Offerors
00600	Representations and Certifications
00700	Contract Clauses
00800	Special Contract Requirements
	Attachment 1 to Section 00800
	Specifications - Divisions 1 through 9
	W/Appendix A - Roof Details

SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>	1. SOLICITATION NO. DACA21-03-R-0033-0002	2. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED 10-Feb-2003	PAGE OF PAGES 1 OF 78
IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.				
4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO.		6. PROJECT NO.	
7. ISSUED BY CODE <u>DACA21</u> US ARMY ENGINEER DISTRICT, SAVANNAH 100 W. OGLETHORPE AVE SAVANNAH GA 31401-3640 TEL: FAX:		8. ADDRESS OFFER TO (If Other Than Item 7) CODE <u> </u> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">See Item 7</div> TEL: FAX:		
9. FOR INFORMATION CALL:	A. NAME NORA L JARRELL		B. TELEPHONE NO. (Include area code) (NO COLLECT CALLS) (912)652-5705	
SOLICITATION				
NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".				
10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS <i>(Title, identifying no., date):</i> INDEFINITE DELIVERY CONTRACT - ROOFING, FT BRAGG, NORTH CAROLINA AND OTHER AREAS WITHIN THE GEOGRAPHICAL VICINITY CONTRACTING OFFICER: JULIE M. OLIVER E-MAIL: julie.m.oliver@sas02.usace.army.mil PHONE: 912-652-5899 CONTRACT SPECIALIST: NORA LOUISE JARRELL E-MAIL: nora.l.jarrell@sas02.usace.army.mil PHONE: 912-652-5705 *See Section 00800, COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK				
11. The Contractor shall begin performance within _____ calendar days and complete it within _____ calendar days after receiving <input type="checkbox"/> award, <input checked="" type="checkbox"/> notice to proceed. This performance period is <input checked="" type="checkbox"/> mandatory, <input type="checkbox"/> negotiable. (See Section 00800 _____.)				
12 A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? <i>(If "YES," indicate within how many calendar days after award in Item 12B.)</i> <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			12B. CALENDAR DAYS 10	
13. ADDITIONAL SOLICITATION REQUIREMENTS: A. Sealed offers in original and <u>5</u> copies to perform the work required are due at the place specified in Item 8 by <u>04:00 PM</u> (hour) local time <u>12 Mar 2003</u> (date). If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due. B. An offer guarantee <input checked="" type="checkbox"/> is, <input type="checkbox"/> is not required. C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference. D. Offers providing less than <u>60</u> calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.				

SOLICITATION, OFFER, AND AWARD (Continued) <i>(Construction, Alteration, or Repair)</i>										
OFFER (Must be fully completed by offeror)										
14. NAME AND ADDRESS OF OFFEROR <i>(Include ZIP Code)</i>						15. TELEPHONE NO. <i>(Include area code)</i>				
						16. REMITTANCE ADDRESS <i>(Include only if different than Item 14)</i> See Item 14				
CODE		FACILITY CODE								
17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. <i>(Insert any number equal to or greater than the minimum requirements stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)</i>										
AMOUNTS		SEE SCHEDULE OF PRICES								
18. The offeror agrees to furnish any required performance and payment bonds.										
19. ACKNOWLEDGMENT OF AMENDMENTS <i>(The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each)</i>										
AMENDMENT NO.										
DATE										
20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER <i>(Type or print)</i>						20B. SIGNATURE			20C. OFFER DATE	
AWARD (To be completed by Government)										
21. ITEMS ACCEPTED:										
22. AMOUNT		23. ACCOUNTING AND APPROPRIATION DATA								
24. SUBMIT INVOICES TO ADDRESS SHOWN IN <i>(4 copies unless otherwise specified)</i>				ITEM		25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO <input type="checkbox"/> 10 U.S.C. 2304(c) <input type="checkbox"/> 41 U.S.C. 253(c)				
26. ADMINISTERED BY		CODE				27. PAYMENT WILL BE MADE BY: CODE				
CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE										
<input type="checkbox"/> 28. NEGOTIATED AGREEMENT <i>(Contractor is required to sign this document and return _____ copies to issuing office.)</i> Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications or incorporated by reference in or attached to this contract.						<input type="checkbox"/> 29. AWARD <i>(Contractor is not required to sign this document.)</i> Your offer on this solicitation, is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.				
30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN <i>(Type or print)</i>						31A. NAME OF CONTRACTING OFFICER <i>(Type or print)</i>				
30B. SIGNATURE			30C. DATE			TEL:		EMAIL:		
						31B. UNITED STATES OF AMERICA BY			31C. AWARD DATE	

Section 00010 - Solicitation Contract Form

NOTICE TO BIDDERS

NOTICE TO OFFERORS

HAND-CARRIED OR MAILED PROPOSALS:

All proposals must be clearly identified with the contractor's name and address. To ensure timely and proper handling, the lower left corner of the outermost wrapper should indicate the Request for Proposal No., Due Date of Proposal, Time by which Proposals are Due, and Title of Project.

The Government will not be responsible for proposals delivered to any location or to anyone other than those designated to receive proposals on its behalf as indicated below.

Proposals delivered by commercial carrier and those sent by U.S. Mail, including U.S. Express Mail, must be addressed as indicated below. Proposals shall not be addressed to any specific person.

U.S. Army Engineer District, Savannah
ATTN: CESAS-CT-C
100 West Oglethorpe Avenue
Savannah, Georgia 31401-3640

Mailroom personnel on the first floor of 100 West Oglethorpe Avenue must receive proposals sent by U.S. Mail or delivered by commercial carrier by the time specified in Block 13 of SF1442 for receipt of proposals.

Offerors are cautioned that proposals sent via United States Postal Service Express Mail are first delivered to the Savannah District Post Office Box instead of 100 West Oglethorpe Avenue, "the office designated for receipt of proposals" therefore, allow sufficient mailing time.

Hand-carried proposals also must be delivered to mailroom personnel on the first floor of 100 West Oglethorpe Avenue by the time specified in Block 13 of SF1442 for receipt of proposals.

Offerors are cautioned that there is no parking in or around the building, therefore, when hand delivering proposals, sufficient time should be allowed for transporting of proposal packages from your vehicle to mailroom personnel.

SECURITY REQUIREMENTS:

All commercial vehicles larger than a pickup must enter the Fort Bragg, NC Post through one of two locations, Knox Street or Longstreet Road, where the vehicles will be "scanned". In order for Bragg's security actions to be effective, no commercial vehicles larger than a pickup will be allowed to directly enter Pope Air Force Base, NC and all will have to come through Ft. Bragg, NC.

NOTE:

Facsimile modification of offers is NOT authorized and will not be accepted.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	Base Period - Indefinite-Delivery Indefinite-Quantity Contract - Roofing. The contractor is to perform any or all functions referred to in the attached Specifications in the quantities specified within individual task orders and modifications issued against this contract for the appropriate unit price referenced in the current R.S. Means Construction Book/Software, and multiplied by the coefficient/percentage factor listed in CLIN 0001. COEFFICIENT _____ This coefficient is to be used on all task orders and modifications written during performance base period.				

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002	Option Period One - Indefinite-Delivery Indefinite-Quantity Contract - Roofing. The contractor is to perform any or all functions referred to in the attached Specifications, in quantities specified within individual task orders, and modifications, issued against this contract, for the appropriate unit price as referenced in the current R.S. Means Construction Book/Software, and multiplied by the coefficient/percentage factor listed in CLIN 0002. COEFFICIENT _____ This coefficient is to be used on all task orders and modifications written during Option Period 1.				

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003	Option Period Two - Indefinite-Delivery Indefinite-Quantity Contract. The contractor is to perform any or all functions referred to in the attached Specifications, in quantities specified within individual task orders and modifications issued against this contract, from the Construction Book/Software, and multiplied by the coefficient/percentage factor listed in CLIN 0003. COEFFICIENT _____ This coefficient is to be used on all task orders and modifications written during Option Period Two.				

FOB: Destination

MAMIMUM DOLLAR AMOUNT

This contract has a maximum of not to exceed \$2 million per period, with a total of not to exceed \$6 million for base and two (2) option periods.

Section 00100 - Bidding Schedule/Instructions to Bidders

CLAUSES INCORPORATED BY FULL TEXT

52.204-6 DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER (JUN 99)

(a) The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation "DUNS" followed by the DUNS number that identifies the offeror's name and address exactly as stated in the offer.

(b) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one. A DUNS number will be provided immediately by telephone at no charge to the offeror. For information on obtaining a DUNS number, the offeror, if located within the United States, should call Dun and Bradstreet at 1-800-333-0505. The offeror should be prepared to provide the following information:

- (1) Company name.
- (2) Company address.
- (3) Company telephone number.
- (4) Line of business.
- (5) Chief executive officer/key manager.
- (6) Date the company was started.
- (7) Number of people employed by the company.
- (8) Company affiliation.

(c) Offerors located outside the United States may obtain the location and phone number of the local Dun and Bradstreet Information Services office from the Internet Home Page at <http://www.customerservice@dnb.com>. If an offeror is unable to locate a local service center, it may send an e-mail to Dun and Bradstreet at globalinfo@mail.dnb.com.

(End of provision)

52.211-2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE DOD INDEX OF SPECIFICATIONS AND STANDARDS (DODISS) AND DESCRIPTIONS LISTED IN THE ACQUISITION MANAGEMENT SYSTEMS AND DATA REQUIREMENTS CONTROL LIST, DOD 5010.12-L (DEC 1999)

Copies of specifications, standards, and data item descriptions cited in this solicitation may be obtained--

- (a) From the ASSIST database via the Internet at <http://assist.daps.mil>; or
- (b) By submitting a request to the--Department of Defense Single Stock Point (DoDSSP), Building 4, Section D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Telephone (215) 697-2667/2179, Facsimile (215) 697-1462.

(End of provision)

52.211-14 NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE (SEP 1990)

Any contract awarded as a result of this solicitation will be DO rated order certified for national defense use under the Defense Priorities and Allocations System (DPAS) (15 CFR 700), and the Contractor will be required to follow all of the requirements of this regulation. [Contracting Officer check appropriate box.]

(End of provision)

52.214-5000 APPARENT CLERICAL MISTAKES (MAR 1995)--EFARS

(a) For the purpose of initial evaluations of bids, the following will be utilized in the resolving arithmetic discrepancies found on the face of bidding schedule as submitted by the bidder:

- (1) Obviously misplaced decimal points will be corrected;
- (2) Discrepancy between unit price and extended price, the unit price will govern;
- (3) Apparent errors in extension of unit prices will be corrected;
- (4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purpose of bid evaluation, the government will proceed on the assumption that the bidder intends his bid to be evaluated on basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid is low.

(End of statement)

52.215-1 INSTRUCTIONS TO OFFERORS--COMPETITIVE ACQUISITION (MAY 2001)

(a) Definitions. As used in this provision--

“Discussions” are negotiations that occur after establishment of the competitive range that may, at the Contracting Officer's discretion, result in the offeror being allowed to revise its proposal.

“In writing or written” means any worded or numbered expression which can be read, reproduced, and later communicated, and includes electronically transmitted and stored information.

“Proposal modification” is a change made to a proposal before the solicitation's closing date and time, or made in response to an amendment, or made to correct a mistake at any time before award.

“Proposal revision” is a change to a proposal made after the solicitation closing date, at the request of or as allowed by a Contracting Officer as the result of negotiations.

“Time”, if stated as a number of days, is calculated using calendar days, unless otherwise specified, and will include Saturdays, Sundays, and legal holidays. However, if the last day falls on a Saturday, Sunday, or legal holiday, then the period shall include the next working day.

(b) Amendments to solicitations. If this solicitation is amended, all terms and conditions that are not amended remain unchanged. Offerors shall acknowledge receipt of any amendment to this solicitation by the date and time specified in the amendment(s).

(c) Submission, modification, revision, and withdrawal of proposals. (1) Unless other methods (e.g., electronic commerce or facsimile) are permitted in the solicitation, proposals and modifications to proposals shall be submitted in paper media in sealed envelopes or packages (i) addressed to the office specified in the solicitation, and (ii) showing the time and date specified for receipt, the solicitation number, and the name and address of the offeror.

Offerors using commercial carriers should ensure that the proposal is marked on the outermost wrapper with the information in paragraphs (c)(1)(i) and (c)(1)(ii) of this provision.

(2) The first page of the proposal must show--

(i) The solicitation number;

(ii) The name, address, and telephone and facsimile numbers of the offeror (and electronic address if available);

(iii) A statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation and agreement to furnish any or all items upon which prices are offered at the price set opposite each item;

(iv) Names, titles, and telephone and facsimile numbers (and electronic addresses if available) of persons authorized to negotiate on the offeror's behalf with the Government in connection with this solicitation; and

(v) Name, title, and signature of person authorized to sign the proposal. Proposals signed by an agent shall be accompanied by evidence of that agent's authority, unless that evidence has been previously furnished to the issuing office.

(3) Submission, modification, or revision, of proposals.

(i) Offerors are responsible for submitting proposals, and any modifications, or revisions, so as to reach the Government office designated in the solicitation by the time specified in the solicitation. If no time is specified in the solicitation, the time for receipt is 4:30 p.m., local time, for the designated Government office on the date that proposal or revision is due.

(ii)(A) Any proposal, modification, or revision received at the Government office designated in the solicitation after the exact time specified for receipt of offers is "late" and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and--

(1) If it was transmitted through an electronic commerce method authorized by the solicitation, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or

(2) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of offers and was under the Government's control prior to the time set for receipt of offers; or

(3) It is the only proposal received.

(B) However, a late modification of an otherwise successful proposal that makes its terms more favorable to the Government, will be considered at any time it is received and may be accepted.

(iii) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

(iv) If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the office designated for receipt of proposals by the exact time specified in the solicitation, and urgent Government requirements preclude amendment of the solicitation, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume.

(v) Proposals may be withdrawn by written notice received at any time before award. Oral proposals in response to oral solicitations may be withdrawn orally. If the solicitation authorizes facsimile proposals, proposals may be withdrawn via facsimile received at any time before award, subject to the conditions specified in the provision at 52.215-5, Facsimile Proposals. Proposals may be withdrawn in person by an offeror or an authorized representative, if the identity of the person requesting withdrawal is established and the person signs a receipt for the proposal before award.

(4) Unless otherwise specified in the solicitation, the offeror may propose to provide any item or combination of items.

(5) Offerors shall submit proposals in response to this solicitation in English, unless otherwise permitted by the solicitation, and in U.S. dollars, unless the provision at FAR 52.225-17, Evaluation of Foreign Currency Offers, is included in the solicitation.

(6) Offerors may submit modifications to their proposals at any time before the solicitation closing date and time, and may submit modifications in response to an amendment, or to correct a mistake at any time before award.

(7) Offerors may submit revised proposals only if requested or allowed by the Contracting Officer.

(8) Proposals may be withdrawn at any time before award. Withdrawals are effective upon receipt of notice by the Contracting Officer.

(d) Offer expiration date. Proposals in response to this solicitation will be valid for the number of days specified on the solicitation cover sheet (unless a different period is proposed by the offeror).

(e) Restriction on disclosure and use of data. Offerors that include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall--

(1) Mark the title page with the following legend: This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed--in whole or in part--for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of--or in connection with-- the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]; and

(2) Mark each sheet of data it wishes to restrict with the following legend: Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.

(f) Contract award. (1) The Government intends to award a contract or contracts resulting from this solicitation to the responsible offeror(s) whose proposal(s) represents the best value after evaluation in accordance with the factors and subfactors in the solicitation.

(2) The Government may reject any or all proposals if such action is in the Government's interest.

(3) The Government may waive informalities and minor irregularities in proposals received.

(4) The Government intends to evaluate proposals and award a contract without discussions with offerors (except clarifications as described in FAR 15.306(a)). Therefore, the offeror's initial proposal should contain the offeror's best terms from a cost or price and technical standpoint. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. If the Contracting Officer determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the Contracting Officer may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals.

(5) The Government reserves the right to make an award on any item for a quantity less than the quantity offered, at the unit cost or prices offered, unless the offeror specifies otherwise in the proposal.

(6) The Government reserves the right to make multiple awards if, after considering the additional administrative costs, it is in the Government's best interest to do so.

(7) Exchanges with offerors after receipt of a proposal do not constitute a rejection or counteroffer by the Government.

(8) The Government may determine that a proposal is unacceptable if the prices proposed are materially unbalanced between line items or subline items. Unbalanced pricing exists when, despite an acceptable total evaluated price, the price of one or more contract line items is significantly overstated or understated as indicated by the application of cost or price analysis techniques. A proposal may be rejected if the Contracting Officer determines that the lack of balance poses an unacceptable risk to the Government.

(9) If a cost realism analysis is performed, cost realism may be considered by the source selection authority in evaluating performance or schedule risk.

(10) A written award or acceptance of proposal mailed or otherwise furnished to the successful offeror within the time specified in the proposal shall result in a binding contract without further action by either party.

(11) The Government may disclose the following information in postaward debriefings to other offerors:

(i) The overall evaluated cost or price and technical rating of the successful offeror;

(ii) The overall ranking of all offerors, when any ranking was developed by the agency during source selection;

(iii) A summary of the rationale for award; and

(iv) For acquisitions of commercial items, the make and model of the item to be delivered by the successful offeror.

(End of provision)

52.215-4004 UNNECESSARILY ELABORATE PROPOSALS OR QUOTATIONS

Unnecessarily elaborate brochures or other presentations beyond those sufficient to present a complete and effective response to this solicitation are not desired and may be construed as an indication of the offeror's or quoter's lack of cost consciousness. Elaborate art work, expensive paper and bindings, and expensive paper and bindings, and expensive visual and other presentation aids are neither necessary nor wanted.

52.215-4005 COEFFICIENTS

The "Coefficient" is a numerical percentage factor that represents contractor indirect costs and profits not included in the unit prices (NOTE: the coefficients include PERFORMANCE AND PAYMENT BONDING TO cover the MAXIMUM CONTRACT AMOUNT for any given year). The coefficients proposed and accepted are incorporated in the Indefinite Delivery Indefinite Quantity Contract award. Unit costs are multiplied by the coefficient to determine the cost of each individual task order or modification thereto. A unit cost includes all labor, materials, and equipment, and applicable sub-contractor overhead and profit necessary to install one unit of the line item.

NOTE: The R. S. Means is adjusted for inflation of labor hour and material costs; therefore, the offeror may offer

the same coefficient for all years, if preferred, i.e., the offeror is NOT required to offer different coefficients for option periods. [See **END of Section 00800 for EXAMPLE of how coefficients are applied**]

52.215-4006 EXCLUDED ITEMS

The following sections of Division 1 of the R.S. Means Construction Cost Data Book are excluded from this contract: Overhead, Progress Schedule, QC (to include QC personnel and all additional field testing listed under Section 01450 QC of R. S. Means Construction Cost Data Book.), Find Clearing, and Construct Facility and Temporary.

Line items from these divisions are included in contractor's coefficient and shall not be awarded under task orders unless duplicate effort is required specifically for a particular task order as specified.

52.215-4007 STRUCTURING TASK ORDER PROPOSALS

PREPRICED ITEMS:

Pre-priced items shall consist of only costs for labor, material and equipment for the line items chosen from the Unit Price Book. The "minimum" unit cost will be used whenever a maximum and minimum are listed.

Pre-priced items will be subtotaled and include adjustment by the "weighted average" city cost index and the contract coefficient.

Items of work not included in the unit price book, but within the contract's general scope and intent, may be negotiated by the contracting office and included in individual task orders. Non-pre-priced items shall be supported as directed by the contracting officer. Normally, the contractor will be required to provide:

The estimated number of direct labor hours required by each trade.

A detailed listing of materials/equipment required and their quantities.

The costs of item shall be based upon the pre-determined Davis-Bacon Wage Rates contained in this contract.

Quotations: The contractor will support non-pre-priced items with quotations as directed by the contracting officer. Generally, items less than \$250.00 may not require quotations; items \$250.00 to \$1,000.00 will be supported by one quotation; items \$1,000.00 to \$2,500.00 will be supported by two (2) quotations; and items over \$2,500.00 will be supported by three (3) quotations.

Non-pre-priced line items from the Unit Price Book: Wherever the UPB line items indicate a range of costs by showing a minimum and maximum, other unit costs within the range from above the minimum up to and including the maximum, will be non-pre-priced, and may only be used for unique and unusual circumstances determined by the contracting officer. Only the bare costs for labor, material and equipment may be used for these items. The contract coefficient will not be applied to non-pre-priced items.

52.215-4008 UNIT PRICE BOOK

The Unit Price Book (UPB) used on this contract will be the R.S. Means Construction Cost Data book as adjusted by the city cost indices for locations in Fayetteville, North Carolina, where the work is to be performed, as published in the current edition, and contractor coefficients listed in the Contract Line Item Numbers (CLIN's) in this section, Section 00010.

For pricing of the Base Year and Option Year CLIN's for the solicitation the R.S. Means Construction Cost Data 2002 book is hereby incorporated by reference. Actual copies of the book are available from the R.S. Means Company, 100 Construction Plaza, P.O. Box 800, Kingston, MA 02364-0800, Telephone number: 1-800-334-3509 <or> Facsimile number: 1-800-632-6732.

At the beginning of each calendar year, within 30 days, the current year edition of the R.S. Means Construction Cost Data Book will be incorporated into the contract. The CURRENT EDITION for that calendar year will be used by the Contractor, in combination with the coefficient offered, for developing proposals which accurately reflect the work performance or functions specified in the applicable Specification Section and incorporated into the statement of work for each job to be accomplished per individual task order.

All roofing and related type work, alteration, maintenance, repair, and/or minor construction jobs shall be priced in accordance with the R.S. Means Construction Cost Data, as adjusted by the city cost indices for locations in Fayetteville, North Carolina, as published in the CURRENT EDITION, and the contract coefficients listed in the CLIN's.

The R.S. Means Construction Cost Data Book referenced in the above paragraph, will be used by the Contractor, in combination with the coefficient offered, for developing proposals which accurately reflect the work performance or functions specified in the applicable Specification Section and incorporated into the statement of work for each job to be accomplished per individual task order.

The R.S. Means labor rates are adjusted by the applicable city cost index (as indicated in the Facilities Construction Cost Data Book) which is designed to bring line item costs within the local pricing range. However, any compensation for wage differential between the Davis-Bacon hourly wage requirements and the Means must be included in the contractor's proposed coefficients. Attachments identified in Section 00800, provide the current Davis Bacon Wage Rates applicable to this contract.

Items of work not covered in the R.S. Means Construction Cost Data Book listed above, but within this contract's scope and general intent, may be negotiated by the Contracting Officer and added by modification at any time during the contract term.

52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a Firm-fixed price contract resulting from this solicitation.

(End of clause)

52.217-5 EVALUATION OF OPTIONS (JUL 1990)

(a) Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

(b) The Government may reject an offer as nonresponsive if it is materially unbalanced as to prices for the basic requirement and the option quantities. An offer is unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(End of provision)

52.219-4001 SUBCONTRACTING PLAN FOR SMALL BUSINESS CONCERNS (SEP 2002 CESAS-CT)

(a) In accordance with FAR Clause 52.219-9, large businesses must submit a subcontracting plan. A sample subcontracting plan is located in Section 00800.

(b) The subcontracting targets (expressed in terms of percentages of total planned subcontracting dollars) of the Savannah District are as follows:

Small Business	-	57.2%
Small Disadvantaged Business	-	8.9%
HUBZone Small Business		3.0%
Women-Owned Business	-	8.1%
Veteran-Owned Small Business		0%*
Service-Disabled Veteran-Owned Small Business	-	3.0%**

If you cannot reach the above-stated targets, you must provide written justification with your subcontracting plan detailing the reasons you cannot meet the requirements.

*(c) While Savannah District does not have a specific target for subcontracting with Veteran-Owned small businesses, this must be addressed in any subcontracting plan.

** (d) Service-disabled Veteran-owned Small Business (SD/VOSB) is a composite of Veteran-Owned Small Business. The SD/VOSB target must be included in the Veteran-Owned small business target.

52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999)

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade	Goals for female participation for each trade
26.2%	6.9%

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, within 10 working days following award of any construction subcontract in

excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the --

- (1) Name, address, and telephone number of the subcontractor;
- (2) Employer's identification number of the subcontractor;
- (3) Estimated dollar amount of the subcontract;
- (4) Estimated starting and completion dates of the subcontract; and
- (5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is Ft. Bragg, NC, and other geographical areas.

(End of provision)

52.225-10 NOTICE OF BUY AMERICAN ACT REQUIREMENT--CONSTRUCTION MATERIALS (MAY 2002)

(a) Definitions. Construction material, domestic construction material, and foreign construction material, as used in this provision, are defined in the clause of this solicitation entitled "Buy American Act --Construction Materials" (Federal Acquisition Regulation (FAR) clause 52.225-9).

(b) Requests for determinations of inapplicability. An offeror requesting a determination regarding the inapplicability of the Buy American Act should submit the request to the Contracting Officer in time to allow a determination before submission of offers. The offeror shall include the information and applicable supporting data required by paragraphs (c) and (d) of the clause at FAR 52.225-9 in the request. If an offeror has not requested a determination regarding the inapplicability of the Buy American Act before submitting its offer, or has not received a response to a previous request, the offeror shall include the information and supporting data in the offer.

(c) Evaluation of offers. (1) The Government will evaluate an offer requesting exception to the requirements of the Buy American Act, based on claimed unreasonable cost of domestic construction material, by adding to the offered price the appropriate percentage of the cost of such foreign construction material, as specified in paragraph (b)(3)(i) of the clause at FAR 52.225-9.

(2) If evaluation results in a tie between an offeror that requested the substitution of foreign construction material based on unreasonable cost and an offeror that did not request an exception, the Contracting Officer will award to the offeror that did not request an exception based on unreasonable cost.

(d) Alternate offers.

(1) When an offer includes foreign construction material not listed by the Government in this solicitation in paragraph (b)(2) of the clause at FAR 52.225-9, the offeror also may submit an alternate offer based on use of equivalent domestic construction material.

(2) If an alternate offer is submitted, the offeror shall submit a separate Standard Form 1442 for the alternate offer, and a separate price comparison table prepared in accordance with paragraphs (c) and (d) of the clause at FAR 52.225-9 for the offer that is based on the use of any foreign construction material for which the Government has not yet determined an exception applies.

(3) If the Government determines that a particular exception requested in accordance with paragraph (c) of the clause at FAR 52.225-9 does not apply, the Government will evaluate only those offers based on use of the equivalent domestic construction material, and the offeror shall be required to furnish such domestic construction material. An offer based on use of the foreign construction material for which an exception was requested--

(i) Will be rejected as nonresponsive if this acquisition is conducted by sealed bidding; or

(ii) May be accepted if revised during negotiations.

(End of provision)

52.233-2 SERVICE OF PROTEST (AUG 1996)

52 Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from

Julie M. Oliver, Contracting Officer
US Army Corps of Engineers, CESAS-CT-C
100 West Oglethorpe Ave.
Savannah, GA 31402

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

(End of provision)

52.236-27 SITE VISIT (CONSTRUCTION) (FEB 1995)

(a) The clauses at 52.236-2, Differing Site Conditions, and 52.236-3, Site Investigations and Conditions Affecting the Work, will be included in any contract awarded as a result of this solicitation. Accordingly, offerors or quoters are urged and expected to inspect the site where the work will be performed.

(b) Site visits may be arranged during normal duty hours by contacting:

Name: Mr. Calvin Edson, Resident Engineer
Address: Bldg MT2357, Lane & Quartermaster
Ft. Bragg, NC 28307-0247
Telephone: (910) 396-1211, x240

(End of provision)

52.236-28 PREPARATION OF PROPOSALS--CONSTRUCTION (OCT 1997)

(a) Proposals must be (1) submitted on the forms furnished by the Government or on copies of those forms, and (2) manually signed. The person signing a proposal must initial each erasure or change appearing on any proposal form.

(b) The proposal form may require offerors to submit proposed prices for one or more items on various bases, including--

(1) Lump sum price;

(2) Alternate prices;

(3) Units of construction; or

(4) Any combination of paragraphs (b)(1) through (b)(3) of this provision.

(c) If the solicitation requires submission of a proposal on all items, failure to do so may result in the proposal being rejected without further consideration. If a proposal on all items is not required, offerors should insert the words "no proposal" in the space provided for any item on which no price is submitted.

(d) Alternate proposals will not be considered unless this solicitation authorizes their submission.

(End of provision)

52.236-4011 Disclosure of Magnitude of Construction (FAR 36.204 and DFARS 236.204)

The estimated price range for this project is between

\$5,000,000 and \$10,000,000.

SECTION 00100

INSTRUCTIONS, CONDITIONS, AND NOTICE TO OFFERORS

1. PROPOSAL OVERVIEW. This Request for Proposal (RFP) is to solicit an Indefinite Delivery, Multi-Task Construction and Design/Build Construction Contract for new roof installation, roof repair or roof replacement construction tasks. Work will be performed primarily at Ft Bragg. Work may also be located at other Federal Facilities within the geographic boundaries of the U.S. Army Corps of Engineers South Atlantic Division. The task orders will be Firm Fixed Price Construction (FFP-C). In unusual and rare circumstances and with the Contracting Officer's approval, task orders may be issued with a final definitive scope of work and an independent government estimate leading to a fixed price to be negotiated at a later date.

1.1 General. Inasmuch as the proposal shall describe the capability of the Offeror to perform any resultant contract, it should be specific and complete in every detail. The proposal should be prepared simply and economically, providing straightforward, concise delineation of capabilities to satisfactorily perform the contract being sought. The proposal should therefore be practical, legible, clear and coherent. The process used for this solicitation will be a Request for Proposal (RFP) Best Value, (See Federal Acquisition Regulation 15.101). The evaluation criteria will include Construction-Past Performance and Construction-Experience.

1.2 Proposal Submissions and the Best Value Trade-Off Process. This process requires potential contractors to submit their performance and capability information initially for review and consideration by the Government. The technical information contained in the proposal shall be reviewed and evaluated by the Government in accordance

with the evaluation criteria set out in this Section. Relative weights among technical factors are provided in paragraph 4.1 Relative Importance. Following the review, evaluation, and rating of these proposals, the Government will evaluate price proposals for Offerors that have acceptable technical proposals. Price proposals will be a coefficient, which is a numerical percentage factor that represents the Offeror's indirect costs and profits not included in the unit prices. For the work to be performed, the coefficient will be applied to unit prices of the current edition of the R.S. Means Construction Cost Data. Offerors will be required to separately submit their price proposals. Price will not be scored, but will be a factor in establishing the competitive range prior to discussions (if held) and in making the final best value determination for award.

2. PROPOSAL SUBMISSION INSTRUCTIONS

2.1 Who May Submit.

2.1.1 Proposals may be submitted by firms formally organized as construction contractors or roofing contractors. Both are referred to as the Offeror, or the Contractor, after award of a contract.

2.1.2 Any legally organized Offeror may submit a proposal.

2.2 **Where to Submit.** Offerors shall submit their proposal packages to the Savannah District at the address shown in Block 7 of Standard Form 1442.

2.3 **Submission Deadline.** Proposals shall be received by the Savannah District no later than the time and date specified in Block 13 of Standard Form 1442.

2.4 General Requirements.

2.4.1 In order to effectively and equitably evaluate all proposals, the Contracting Officer must receive information sufficiently detailed to allow review and evaluation by the Government.

2.4.2 **Tabs.** Proposal shall be organized and tabbed as shown in paragraph 2.5 Submission Format.

2.4.3 Size of Printed Matter Submissions.

2.4.3.1 Written materials shall be on 8-1/2" x 11" paper.

2.4.3.2 The proposals shall contain a detailed table of contents. If more than one binder is used, the complete table of contents shall be included in each. Any materials submitted but not required by this solicitation, (such as company brochures), shall be relegated to appendices.

2.4.4 **Number of Copies.** Offerors shall submit one (1) hard copy of Volume I and five (5) hard copies of Volume II of their Proposal. Both volumes shall also be submitted on a CD-ROM.

2.5 Submission Format.

2.5.1 The Proposal will be tabbed and submitted in a three ring binders in the following format:

PROPOSAL

VOLUME I

TAB A

- SF 1442

TAB B

- Section 00600 – Representations and Certifications

TAB C

- PROPOSAL DATA SHEET – include Offeror's telephone number, FAX number, DUNS number, and Offeror's CCASS number

VOLUME II**TAB A – FACTOR 1: CONSTRUCTION – PAST PERFORMANCE**

- Past Performance Questionnaire

TAB B – FACTOR 2: CONSTRUCTION - EXPERIENCE

- Project Information Sheets

TAB C – OTHER INFORMATION. Offerors shall submit any other information under TAB D. Information submitted under TAB D may not be considered by the Government.

2.5.2 Price Proposal Information. Offerors shall complete all portions of the Price Proposal Schedule from Section 00010 and furnish the original in a separate envelope labeled "PRICE PROPOSAL". **The technical proposal shall not include any cost information.**

3. PROPOSAL AND SUBMISSION REQUIREMENTS AND EVALUATION

3.1 The Evaluation Team will evaluate each proposal individually using the qualitative/quantitative procedures that follow. Each proposal will be reviewed and rated by each of the evaluators. During this process, discrepancies between evaluations will be discussed and resolved within the team. Following the completion of the individual evaluations, a consensus evaluation will be derived.

3.1.1 Worksheets are provided on the following pages that the evaluators will use to review and rate the individual proposals.

3.1.2 During the consensus evaluation, a single "consensus rating" worksheet shall be completed for each proposal and signed by all the evaluators.

3.1.3 Comments and supporting rationale for the rating assigned will be included on this consensus sheet.

3.2 VOLUME II TAB A - FACTOR 1: CONSTRUCTION – PAST PERFORMANCE. Offerors shall be evaluated on Roofing SABRE, JOC, and IDC Construction and/or Roofing type contracts successfully completed or substantially completed in the last three years with the contracts performed falling within the range of \$50,000 to \$8,000,000. The Offeror's past performance in completing task orders and contracts during the last three years will be evaluated to determine technical capability to perform the proposed contract and how well it satisfied its customers. The information presented in the Offeror's submittal, together with that from other sources available to the Government will comprise the input for evaluation of this factor. The following elements will be evaluated:

- Quality of Construction
- Timeliness of Performance
- Customer Satisfaction
- Sub-contractor Management

3.2.1 Offeror's Submission Requirements. Offeror's shall identify the completed contracts (or substantially complete) as described above to be used for reference and evaluation purposes and provide a questionnaire to the

Point of Contact for each contract listed. A sample Past Performance Evaluation Questionnaire is included at the end of this section. When completed, these forms shall be mailed, faxed or e-mailed to the Savannah District Contract Specialist identified in the sample transmittal letter provided. It is the contractor's responsibility to ensure that the reference documentation is provided, as the Government may not make additional requests for past performance information from the references. Copies of the evaluation form shall be provided to the Savannah District Contract Specialist directly from the reference. Contracts from which questionnaires are received shall have been completed or substantially completed within three years of the date of the solicitation. The Government may contact sources other than those provided by the Offeror for information with respect to past performance. These other sources may include CCASS (Construction Contractor Appraisal Support System), telephone interviews with organizations familiar with the Offeror's performance, and Government personnel with personal knowledge of the Offeror's performance capability.

3.2.2 Evaluation. The Government will evaluate the offeror's past performance using the sources available to it including the example projects identified by the Offeror, Past Performance Evaluation Questionnaires received, and CCASS. Offerors may be provided an opportunity to address any negative past performance information about which the Offeror has not previously had an opportunity to respond. The Government treats an Offeror's lack of past performance as having no positive or negative evaluation significance. The Government will evaluate past performance based on the elements listed below:

- Quality of Construction.** Based on information provided in the questionnaire and other information, the Government will assess the quality of the actual construction undertaken and the standards of workmanship exhibited by the Offeror's team.
- Timeliness of Performance.** The Government will evaluate all information available with respect to the Offeror completing past projects within the scheduled completion times.
- Customer Satisfaction.** The Government will evaluate all information available with respect to the Offeror's past customer satisfaction, cooperation with customers, and interaction on past projects.
- Subcontractor Management.** The Government will evaluate all information available with respect to the Offeror's management of subcontractors on past projects.

3.3 VOLUME II TAB B - FACTOR 2: CONSTRUCTION – EXPERIENCE. Offerors shall be evaluated on SABRE, JOC, and IDC Construction and Design/Build type contracts successfully completed or substantially completed in the last three years that demonstrate the offeror's specialized experience in the construction of new roof installation, roof repair or roof replacement. The majority of the task orders submitted by the Offeror for evaluation should fall within the range of \$25,000 to \$750,000.

3.3.1 Offeror's Submission Requirements. Offerors shall submit Project Information Sheets of construction and design/build type IDC task orders completed, including those in progress during the last three years, listing all completed task orders separately that reflect specialized experience in the construction elements referenced in paragraph 3.3 above. As a minimum, the Project Information Sheets will provide project Point of Contact with telephone number, general character, scope, location, cost, and date of completion of each task order.

3.3.2 Evaluation. The Government will review the list of example task orders provided by the Offeror to evaluate and rate the recent relevant experience of the Offeror with similar projects. The example task orders that most closely resemble new roof installation, roof repair or roof replacement projects will receive the highest consideration. If the Offeror cannot provide suitable relevant experience and the evaluators consider that the information provided indicates that the Offeror has no relevant experience, a determination will be made as to the risk this lack of corporate experience presents to the Government and the proposal will be evaluated accordingly.

3.3.3 PRICE. The Government will perform a price analysis of the coefficient on all proposals received. Price analysis will be performed in accordance with FAR 15.401-1, to determine reasonableness. Reasonableness will be

established using historical price information, price competition information, the IGE, and any other pricing tools necessary.

4.1 Evaluation Standards. Evaluation criteria (factors) will be rated using the following adjectival descriptions. Evaluators will apply the appropriate adjective to each criterion rated. The evaluator's narrative explanation must clearly establish that the Offeror's submittal meets the definitions established below.

4.1.1 OUTSTANDING - Information submitted demonstrates Offeror's potential to significantly exceed performance or capability standards. The offeror has clearly demonstrated an understanding of all aspects of the requirements to the extent that timely and highest quality performance is anticipated. The Offeror possesses exceptional strengths that will significantly benefit the Government. The Offeror's qualifications meet the fullest expectations of the Government. The offeror has convincingly demonstrated that the RFP requirements have been analyzed, evaluated, and synthesized into approaches, plans, and techniques that, when implemented, should result in highly effective and efficient performance under the contract which represents low risk to the Government. An assigned rating of "outstanding" indicates that, in terms of the specific factor, the submittal contains no significant weaknesses, deficiencies or disadvantages. Offeror very significantly exceeds most or all solicitation requirements. **Very high probability of success.**

4.1.2 ABOVE AVERAGE - Information submitted demonstrates Offeror's potential to exceed performance or capability standards. Offeror possesses one or more strengths that will benefit the Government. The areas in which the Offeror exceeds the requirements are anticipated to result in a high level of efficiency, productivity, or quality. The Offeror's qualifications are responsive with minor weaknesses, but no major weaknesses noted. An assigned rating of "Above Average" indicates that, in terms of the specific factor, any weaknesses noted are minor and should not seriously affect the offeror's performance. The submittal demonstrates that the requirements of the RFP are well understood and the approach will likely result in a high quality of performance which represents low risk to the Government. A rating of "Above Average" is used when there are no indications of exceptional features or innovations that could prove to be beneficial, or conversely, weaknesses that could diminish the quality of the effort or increase the risks of failure. Disadvantages are minimal. The submittal contains excellent features that will likely produce results very beneficial to the Government. Offeror fully meets all RFP requirements and significantly exceeds many of the RFP requirements. Response exceeds a "Satisfactory" rating. **High probability of success.**

4.1.3 SATISFACTORY (Neutral) - Information submitted demonstrates Offeror's potential to meet performance or capability standards. Offeror presents an acceptable solution and meets minimum standard requirements. Offeror possesses few or no advantages or strengths. The Offeror's proposal contains weaknesses in several areas that are offset by strengths in other areas. A rating of "Satisfactory" indicates that, in terms of the specific factor, the Offeror may satisfactorily complete the proposed tasks, but there is at least a moderate risk that it will not be successful. There is a good probability of success and that a fully acceptable level of performance will be achieved. Offeror meets all RFP requirements, presents a complete and comprehensive proposal, exemplifies an understanding of the scope and depth of the task requirements, and displays understanding of the Government's requirements. Offeror's response exceeds a "Marginal" rating. **No significant advantages or disadvantages.**

4.1.4 MARGINAL - Information submitted demonstrates Offeror's potential to marginally meet performance or capability standards necessary for minimal but acceptable contract performance. The submittal is not adequately responsive or does not address the specific factor. The assignment of a rating of "Marginal" indicates that mandatory corrective action would be required to prevent significant deficiencies from affecting the overall project. The offeror's qualifications demonstrate an acceptable understanding of the requirements of the RFP and the approach will likely result in an adequate quality of performance, which represents a moderate level of risk to the Government. Offeror displays low probability of success, although the submittal has a reasonable chance of becoming at least acceptable. Offeror's response exceeds an "Unsatisfactory" rating. **Significant disadvantages.**

4.1.5 UNSATISFACTORY – Information submitted fails to meet performance or capability standards necessary for acceptable contractor performance. The Offeror's interpretation of the Government's requirements is so superficial, incomplete, vague, incompatible, incomprehensible, or incorrect as to be Unsatisfactory. The submittal does not meet the minimum requirements of the RFP; requirements could only be met with major changes to the submittal.

There is no reasonable expectation that acceptable performance would be achieved which represents high risk to the Government. The Offeror's qualifications have many deficiencies and/or gross omissions; fail to provide a reasonable, logical approach to fulfilling much of the Government's requirements; and, fail to meet many of the minimum requirements. The Offeror's qualifications are so unacceptable that it would have to be completely revised in order to attempt to make them acceptable. **Very significant disadvantages.**

5. EVALUATION FACTORS and WEIGHTS

5.1 Relative Importance. All factors are equal in weight.

5.2 Relative Importance Definition. Equal in weight term will be used to establish that the criterion is of the same value or nearly the same value as another criterion.

5.3 Price. Price will not be scored, but will be a factor in establishing the competitive range prior to discussions (if held) and in making the final best value determination for award.

6. OVERALL PROPOSAL RATING

6.1 Each member of the Government evaluation team will independently consider all information provided in the proposal. Once these individual analyses are completed, the team will meet and determine a rating for each of the evaluation factors by consensus decision.

6.2 Following completion of the consensus rating, each proposal will be assigned a single overall rating. This final overall rating, along with ratings on individual factors, will be provided to the Contracting Officer/Source Selection Authority.

6.3 The evaluation team will document sufficient strengths, weaknesses, and omissions to support the rating for each factor as well as the overall rating. Documentation and comments are required for all ratings.

7. BASIS FOR AWARD

7.1 In order to determine which proposal represents the best overall value, the Government will compare proposals to one another. The Government will award a contract to the responsible Offeror whose technical submittal and price proposal contains the combination of those criteria described in this document offering the best overall value to the Government. Best value will be determined by a comparative assessment of proposals against all source selection criteria in this RFP.

7.2 All evaluation factors other than cost or price, when combined are approximately equal to cost or price.

7.3 As technical ratings and relative advantages and disadvantages become less distinct, differences in price between proposals are of increased importance in determining the most advantageous proposal. Conversely, as differences in price become less distinct, differences in scoring and relative advantages and disadvantages between proposals are of increased importance to the determination.

7.4 The Government reserves the right to accept other than the lowest priced offer. The right is also reserved to reject any and all offers. The basis of award will be a conforming offer, the price or cost of which may or may not be the lowest. If other than the lowest offer, it must be sufficiently more advantageous than the lowest offer to justify the payment of additional amounts.

7.5 Offerors are reminded to include their best technical and price terms in their initial offer and not to automatically assume that they will have an opportunity to participate in discussions or be asked to submit a revised offer. The Government may make award of a conforming proposal without discussions, if deemed to be within the best interests of the Government.

8. EXCEPTIONS

Exceptions to the contractual terms and conditions of the solicitation (e.g., standard company terms and conditions) may result in a determination to reject a proposal.

9. RESTRICTIONS

Incomplete proposals. Failure to submit all the data in the format indicated in this section may be cause for determining a proposal incomplete and, therefore, not considered for evaluation, and for subsequent award.

PROPOSAL DATA SHEET

INDEFINITE DELIVERY CONTRACT (IDC)

FOR CONSTRUCTION AND DESIGN/BUILD CONSTRUCTION

NOTE TO OFFERORS

This OFFEROR PERFORMANCE CAPABILITY PROPOSAL DATA SHEET must be completed and attached as the first page of the body of your proposal. The information required by this data sheet may be completed directly on this form or attached to the form as supplemental data sheets.

1. NAME OF OFFEROR.

Name of Offeror(s):

Offeror's Telephone Number:

Offeror's FAX Number:

If a joint venture or contractor-subcontractor association of firms, list the individual firms and briefly describe the nature of the association.

Firm 1:

Firm 2:

Nature of Association:

2. OFFEROR'S DUNS NUMBER.

(If more than one DUNS number is to be considered explain affiliation to offeror)

3. OFFEROR'S CCASS NUMBER.

4. AUTHORIZED NEGOTIATORS.

The offeror represents that the following persons are authorized to negotiate on its behalf with the Government in connection with this Request for Proposals (RFP).

[List names, titles, and telephone number of the authorized negotiator.]

Name of Person Authorized to Negotiate:

Negotiator's Address:

Negotiator's Telephone:

PROPOSAL DATA SHEET

(Continued)

5. FACTOR 1: CONSTRUCTION - PAST PERFORMANCE INFORMATION.

5.1 On an attached sheet, provide information for three Roofing SABRE, JOC, and IDC Construction or other Roofing type contracts in-progress or completed by the Offeror over the last three years, in the cost range of \$50,000 to \$8,000,000, to be used for reference and evaluation purposes. These should be the same contracts for which questionnaires have been provided to the Procurement Point of Contact.

For each contract provide the following information:

Contract Title:

Location:

Contract number:

Nature of involvement in this project, i.e. General Contractor, subcontractor, designer:

Procuring activity:

Procurement point of contact and telephone number:

List date of construction completion or percent completion if construction is underway:

Address of building(s):

Address and telephone number of owner:

Indicate type of project (private sector, Government, planned unit development, etc.):

General character of the Project:

Total cost:

Total cost of all modifications:

6.2 On an attached sheet, list all contracts with the Government within the last three years. Indicate Government contract number and contracting agency (with contact names and telephone numbers).

6.3 You may provide additional information on your capabilities, but please be brief.

**SAMPLE TRANSMITTAL LETTER
AND
PAST PERFORMANCE EVALUATION QUESTIONNAIRE**

Date: _____

To: _____

We have listed your firm as a reference for work we have performed for you as listed below. Our firm has submitted a proposal under a contract advertised by the U.S. Army Corps of Engineers, Savannah District titled Indefinite Delivery Contract for Construction and Design/Build Construction, Solicitation Number DACA21-03-R-0033. In accordance with Federal Acquisition Regulations (FAR), an evaluation of our firm's past performance will be completed by the Corps of Engineers. Your candid response to the attached questionnaire will assist the evaluation team in this process.

We understand that you have a busy schedule and your participation in this evaluation is greatly appreciated. Please complete the enclosed questionnaire as thoroughly as possible. Space is provided for comments. Understand that while the responses to this questionnaire may be released to the offeror, FAR 15.306 (e)(4) prohibits the release of the names of the persons providing the responses. Complete confidentiality will be maintained. Furthermore, a questionnaire has also been sent to _____ of your organization. Only one response from each office is required. If at all possible, we request that you individually answer this questionnaire and then coordinate your responses with that of _____, to develop a consensus on one overall response from your organization.

Please send your completed questionnaire to the following address to arrive NOT LATER THAN March 13, 2003:

U.S. Army Engineer District, Savannah
Contracting Division
CESAS-CT-C (Louise Jarrell)
100 West Oglethorpe Street
Savannah, Georgia 31402

The questionnaires can also be faxed to *Contract Specialist*, Savannah District Contract Specialist at FAX 912-652-5828 or emailed to Nora.L.Jarrell@sas02.usace.army.mil. If you have questions regarding the attached questionnaire, or require assistance, please contact Louise Jarrell at 912-652-5705. Thank you for your assistance.

PAST PERFORMANCE EVALUATION QUESTIONNAIRE

INDEFINITE DELIVERY CONTRACT FOR CONSTRUCTION AND DESIGN/BUILD CONSTRUCTION

DACA21-03-R-0033

Upon completion of this form, please send directly to the U.S. Army Corps of Engineers in the enclosed addressed envelope or fax to Louise Jarrell at FAX NUMBER 912-652-5828 or email to Nora.L.Jarrell@sas02.usace.army.mil.

Do not return this form to our offices. Thank you.

1. Contractor/Name & Address (City and State):

2. Type of Contract: SABRE _____ JOC _____
IDC _____

3. Title of Project/Contract Number/Contract Amount:

4. Description of Work: (Attach additional pages as necessary)

5. Complexity of Work: High _____ Mid _____ Routine _____

6. Location of Work: _____

7. Date of Award: _____

8. Status: Active _____ (provide percent complete)

Complete _____ (provide completion date)

9. Name, address and telephone number of person completing this questionnaire:

10. QUALITY OF CONSTRUCTION:

Evaluate the contractor's performance in complying with the contract requirements, quality and the overall technical expertise demonstrated by the Contractor.

Outstanding Quality	
Above Average Quality	
Satisfactory Quality	
Marginal Quality	
Unsatisfactory Quality or Experienced Significant Quality Problems	

Remarks: _____

11. TIMELINESS OF PERFORMANCE:

To what extent did the contractor meet the contract and/or individual task order schedules?

Outstanding Timeliness – Completed Substantially Ahead of Schedule	
Above Average Timeliness – Completed on Schedule with no Time Delays	
Satisfactory Timeliness – Completed on Schedule with Minor Delays Under Extenuating Circumstances	
Marginal Timeliness – Completed Behind Schedule	
Unsatisfactory Timeliness – Experienced Significant Delays without Justification	

Remarks: _____

12. CUSTOMER SATISFACTION:

To what extent were the end users satisfied:

Outstanding – Exceptionally Satisfied	
Above Average – Highly Satisfied	
Satisfactory – Satisfied	
Marginal – Somewhat Dissatisfied	
Unsatisfactory – Highly Dissatisfied	

Remarks: _____

13. SUBCONTRACTOR MANAGEMENT

How well did the contractor manage and coordinate subcontractors, suppliers, and the labor force?

Outstanding	
Above Average	
Satisfactory	
Marginal	
Unsatisfactory	

Remarks: _____

[illegible]

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 1
CONSTRUCTION - PAST PERFORMANCE

1. General: The Government will evaluate each Offeror's past performance to determine how well it satisfied its customers. Evaluators will use this factor to evaluate the success of the Offeror based on the satisfaction of previous customers and clients as illustrated on the completed questionnaires.

Has Government received three completed questionnaires for this Offeror ___ YES ___ NO

Do all the questionnaires received reflect contracts completed or substantially completed within the last 3 years
___ YES ___ NO

2. CCASS Ratings: Contract Specialist shall provide CCASS Ratings for the Offeror.

Number of Ratings:	Outstanding	_____
	Above Average	_____
	Satisfactory	_____
	Marginal	_____
	Unsatisfactory	_____

OVERALL CCASS RATING. Select an appropriate overall rating for the CCASS evaluation information available:

/___/ Outstanding

/___/ Above Average

/___/ Satisfactory

/___/ Marginal

/___/ Unsatisfactory

Comments to support the OVERALL CCASS RATING:

Offeror: _____

Evaluator: _____

**PROPOSAL RATING WORKSHEET
FACTOR 1**

CONSTRUCTION - PAST PERFORMANCE

(Continued)

3. Relevant Evaluator Personal Knowledge: Has this evaluator had personal experiences with the offeror? If so, describe below:

4. Quality of Construction: Evaluators shall carefully evaluate the information provided in the completed questionnaires to ascertain a level of customer satisfaction with the quality of the past contracts. Based on that review, provide a rating for the Quality of Construction below. Include a listing of any apparent weaknesses or strengths of the Offeror.

/___/ Outstanding

/___/ Above Average

/___/ Satisfactory

/___/ Marginal

/___/ Unsatisfactory

4.1 Strengths: Include a listing of any identified or obvious strengths of the offeror with respect to final Quality of Construction.

4.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the offeror with respect to final Quality of Construction.

4.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 1
CONSTRUCTION – PAST PERFORMANCE
(Continued)

5. Timeliness of Performance: Evaluators shall carefully review the information provided in the completed questionnaires to ascertain customer satisfaction with the timeliness of performance on the past contracts. Based on that review, provide a rating for the timeliness of performance of the past contracts below. Include a listing of any apparent weaknesses or strengths of the Offeror.

/___/ Outstanding

/___/ Above Average

/___ / Satisfactory

/___ / Marginal

/___ / Unsatisfactory

5.1 Strengths: Include a listing of any identified or obvious strengths of the offeror with respect to timeliness.

5.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the offeror with respect to timeliness.

5.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 1
CONSTRUCTION – PAST PERFORMANCE
(Continued)

6. Customer Satisfaction: Evaluators shall carefully review the information provided in the completed questionnaires to ascertain a level of customer satisfaction with the Offeror's cooperation and interactions on the past contracts. Based on that review, provide a rating for the Offeror's cooperation on the past contracts below. Include a listing of any apparent weaknesses or strengths of the Offeror.

/___/ Outstanding

/___/ Above Average

/___/ Satisfactory

/___/ Marginal

/___/ Unsatisfactory

6.1 Strengths: Include a listing of any identified or obvious strengths of the offeror with respect to Offeror Customer Satisfaction.

6.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the offeror with respect to Offeror Customer Satisfaction.

6.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 1
CONSTRUCTION – PAST PERFORMANCE
(Continued)

7. Subcontractor Management: Evaluators shall carefully review the information provided in the completed questionnaires to ascertain a level of customer satisfaction with the Offeror's Management of Subcontractors on the past contracts. Based on that review, provide a rating for the Offeror's Subcontractor Management Skills on the past contracts below. Include a listing of any apparent weaknesses or strengths of the Offeror.

/__ / Outstanding

/__ / Above Average

/__ / Satisfactory

/__ / Marginal

/__ / Unsatisfactory

7.1 Strengths: Include a listing of any identified or obvious strengths of the offeror with respect to Offeror Subcontractor Management.

7.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the offeror with respect to Offeror Subcontractor Management.

7.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.

Offeror: _____

Evaluator: _____

**PROPOSAL RATING WORKSHEET
FACTOR 1
CONSTRUCTION – PAST PERFORMANCE
(Continued)**

Factor 1 Past Performance Overall Rating

FACTOR 1-1 SUMMARY RATING CHART			
Item No.	Description	Rating*	Comments
1.	Questionnaire Receipt	YES/NO	
2.	CCASS Rating		
3.	Personal Experience	N/A	No rating permitted here
4.	Quality of Construction		
5.	Timeliness of Performance		
6.	Customer Satisfaction		
7.	Sub-Contractor Management		

OVERALL FACTOR 1 RATING**		
<p>* Ratings may be either:</p> <p style="text-align: center;">Outstanding – Above Average – Satisfactory – Marginal – Unsatisfactory</p> <p>** Evaluators shall consider the ratings in the various items shown to determine a suitable overall rating.</p>		

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 2
CONSTRUCTION – EXPERIENCE

1. General: The Government will evaluate the depth and breadth of the Offeror's corporate experience on the basis of the number of times it has performed projects that were similar in nature, size, scope, and complexity as the work required by this RFP. Completed Project Information Sheets shall be used as a basis to begin the evaluation of this factor.

Has the Government received completed Project Information Sheets for Experience for this Offeror?

___ YES ___ NO

COMMENTS:

Do all the Project Information Sheets received reflect projects completed or substantially completed within the last 3 years?

___ YES ___ NO

COMMENTS:

2. Offeror Similar Construction Projects Completed: The number and size of projects completed of similar scope required by this RFP in the last three (3) years.

/___/ Outstanding

/___/ Above Average

/__ / Satisfactory

/__ / Marginal

/__ / Unsatisfactory

2.1 Strengths: Include a listing of any identified or obvious strengths of the offeror with respect to experience.

2.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the offeror with respect to experience.

2.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.

Offeror: _____

Evaluator: _____

SUMMARY RATING CHART			
Factor	Description	Rating*	Comments
1	CONSTRUCTION – PAST PERFORMANCE		
2	CONSTRUCTION – EXPERIENCE		
-			
OVERALL PROPOSAL RATING			

* Ratings may be either:

Outstanding – Above Average – Satisfactory – Marginal – Unsatisfactory

Offeror: _____

CONSENSUS SUMMARY RATING CHART					
Factor	Description	Board Member 1	Board Member 2	Board Member 3	CONSENSUS
1	CONSTRUCTION – PAST PERFORMANCE				
2	CONSTRUCTION – EXPERIENCE				
-					

OVERALL PROPOSAL RATING				
Ratings may be either: Outstanding – Above Average – Satisfactory – Marginal – Unsatisfactory				

Board Member 1

Board Member 2

Board Member 3

Board Chairperson

Section 00600 - Representations & Certifications

CLAUSES INCORPORATED BY FULL TEXT

52.203-2 CERTIFICATE OF INDEPENDENT PRICE DETERMINATION (APR 1985)

(a) The offeror certifies that --

53 The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other offeror or competitor relating to --

(a) Those prices,

(ii) The intention to submit an offer, or

(iii) The methods of factors used to calculate the prices offered:

(2) The prices in this offer have not been and will not be knowingly disclosed by the offeror, directly or indirectly, to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(b) Each signature on the offer is considered to be a certification by the signatory that the signatory --

(1) Is the person in the offeror's organization responsible for determining the prices offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision _____ (insert full name of person(s) in the offeror's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the offeror's organization);

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision.

(c) If the offeror deletes or modifies subparagraph (a)(2) of this provision, the offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

(End of clause)

52.203-11 CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (APR 1991)

(a) The definitions and prohibitions contained in the clause, at FAR 52.203-12, Limitation on Payments to Influence Certain Federal Transactions, included in this solicitation, are hereby incorporated by reference in paragraph (b) of

this Certification.

(b) The offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief that on or after December 23, 1989,--

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the offeror shall complete and submit, with its offer, OMB standard form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

(3) He or she will include the language of this certification in all subcontract awards at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

54 Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(End of provision)

52.204-5 WOMEN-OWNED BUSINESS (OTHER THAN SMALL BUSINESS) (MAY 1999)

(a) Definition. Women-owned business concern, as used in this provision, means a concern that is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of its stock is owned by one or more women; and whose management and daily business operations are controlled by one or more women.

(b) Representation. [Complete only if the offeror is a women-owned business concern and has not represented itself as a small business concern in paragraph (b)(1) of FAR 52.219-1, Small Business Program Representations, of this solicitation.] The offeror represents that it () is a women-owned business concern.

(End of provision)

52.204-4003 TAXPAYER IDENTIFICATION

Taxpayer Identification Number (TIN),” as used in this provision, means the number required by the Internal Revenue Service (IRS) to be used by the offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(a) Taxpayer Identification Number (TIN).

___ TIN:_____

___ TIN has been applied for.

___ TIN is not required because:

___ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

___ Offeror is an agency or instrumentality of a foreign government;

___ Offeror is an agency or instrumentality of the Federal Government.

(b) Type of organization.

___ Sole proprietorship;

___ Partnership;

___ Corporate entity (not tax-exempt);

___ Corporate entity (tax-exempt);

___ Government entity (Federal, State, or local);

___ Foreign government;

___ International organization per 26 CFR 1.6049-4;

___ Other _____

(c) Common parent.

___ Offeror is not owned or controlled by a common parent

___ Name and TIN of common parent:

Name _____

TIN _____

(End of provision)

52.209-5 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (DEC 2001)

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that--

(i) The Offeror and/or any of its Principals--

(A) Are () are not () presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have () have not (), within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(C) Are () are not () presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision.

(ii) The Offeror has () has not (), within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER SECTION 1001, TITLE 18, UNITED STATES CODE.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of provision)

52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (APR 2002) - ALTERNATE I (APR 2002)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 238160.

(2) The small business size standard is 28.5 million.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it () is, () is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it () is, () is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it () is, () is not a women-owned small business concern.

(4) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it () is, () is not a veteran-owned small business concern.

(5) (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(4) of this provision.) The offeror represents as part of its offer that it () is, () is not a service-disabled veteran-owned small business concern.

(6) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents, as part of its offer, that--

(i) It () is, () is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It () is, () is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (b)(6)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. (The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture:_____.) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(7) (Complete if offeror represented itself as disadvantaged in paragraph (b)(2) of this provision.) The offeror shall check the category in which its ownership falls:

____ Black American.

____ Hispanic American.

____ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

____ Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

____ Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

____ Individual/concern, other than one of the preceding.

(c) Definitions. As used in this provision--

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern," means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern," means a small business concern --

(1) That is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; or

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice.

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of provision)

52.219-19 SMALL BUSINESS CONCERN REPRESENTATION FOR THE SMALL BUSINESS
COMPETITIVENESS DEMONSTRATION PROGRAM (OCT 2000)

(a) Definition.

"Emerging small business" as used in this solicitation, means a small business concern whose size is no greater than 50 percent of the numerical size standard applicable to the North American Industry Classification System (NAICS) code assigned to a contracting opportunity.

(b) [Complete only if the Offeror has represented itself under the provision at 52.219-1 as a small business concern under the size standards of this solicitation.] The Offeror [] is, [] is not an emerging small business.

(c) (Complete only if the Offeror is a small business or an emerging small business, indicating its size range.)

Offeror's number of employees for the past 12 months (check this column if size standard stated in solicitation is expressed in terms of number of employees) or Offeror's average annual gross revenue for the last 3 fiscal years (check this column if size standard stated in solicitation is expressed in terms of annual receipts). (Check one of the following.)

No. of Employees Avg. Annual Gross Revenues

___ 50 or fewer	___ \$1 million or less
___ 51 - 100	___ \$1,000,001 - \$2 million
___ 101 - 250	___ \$2,000,001 - \$3.5 million
___ 251 - 500	___ \$3,500,001 - \$5 million
___ 501 - 750	___ \$5,000,001 - \$10 million
___ 751 - 1,000	___ \$10,000,001 - \$17 million
___ Over 1,000	___ Over \$17 million

(End of provision)

52.222-22 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FEB 1999)

The offeror represents that --

(a) () It has, () has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;

(b) () It has, () has not, filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of provision)

52.222-38 COMPLIANCE WITH VETERANS' EMPLOYMENT REPORTING REQUIREMENTS (DEC 2001)

By submission of its offer, the offeror represents that, if it is subject to the reporting requirements of 38 U.S.C. 4212(d) (i.e., if it has any contract containing Federal Acquisition Regulation clause 52.222-37, Employment Reports on Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans), it has submitted the most recent VETS-100 Report required by that clause.

(End of provision)

52.223-4 RECOVERED MATERIAL CERTIFICATION (OCT 1997)

As required by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6962(c)(3)(A)(i)), the offeror certifies, by signing this offer, that the percentage of recovered materials to be used in the performance of the contract will be at least the amount required by the applicable contract specifications.

(End of provision)

52.223-13 CERTIFICATION OF TOXIC CHEMICAL RELEASE REPORTING (OCT 2000)

(a) Submission of this certification is a prerequisite for making or entering into this contract imposed by Executive Order 12969, August 8, 1995.

(b) By signing this offer, the offeror certifies that--

(1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or

(2) None of its owned or operated facilities to be used in the performance of this contract is subject to the Form R filing and reporting requirements because each such facility is exempt for at least one of the following reasons: (Check each block that is applicable.)

() (i) The facility does not manufacture, process or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

() (ii) The facility does not have 10 or more full-time employees as specified in section 313.(b)(1)(A) of EPCRA 42 U.S.C. 11023(b)(1)(A);

() (iii) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

() (iv) The facility does not fall within Standard Industrial Classification Code (SIC) major groups 20 through 39 or their corresponding North American Industry Classification System (NAICS) sectors 31 through 33; or

() (v) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.

(End of clause)

252.209-7001 DISCLOSURE OF OWNERSHIP OR CONTROL BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)

(a) "Definitions."

As used in this provision --

(a) "Government of a terrorist country" includes the state and the government of a terrorist country, as well as any political subdivision, agency, or instrumentality thereof.

(2) "Terrorist country" means a country determined by the Secretary of State, under section 6(j)(1)(A) of the Export Administration Act of 1979 (50 U.S.C. App. 2405(j)(i)(A)), to be a country the government of which has repeatedly provided support for such acts of international terrorism. As of the date of this provision, terrorist countries include: Cuba, Iran, Iraq, Libya, North Korea, Sudan, and Syria.

(3) "Significant interest" means --

(i) Ownership of or beneficial interest in 5 percent or more of the firm's or subsidiary's securities. Beneficial interest includes holding 5 percent or more of any class of the firm's securities in "nominee shares," "street names," or some other method of holding securities that does not disclose the beneficial owner;

(ii) Holding a management position in the firm, such as a director or officer;

(iii) Ability to control or influence the election, appointment, or tenure of directors or officers in the firm;

(iv) Ownership of 10 percent or more of the assets of a firm such as equipment, buildings, real estate, or other tangible assets of the firm; or

(v) Holding 50 percent or more of the indebtedness of a firm.

(b) "Prohibition on award."

In accordance with 10 U.S.C. 2327, no contract may be awarded to a firm or a subsidiary of a firm if the government of a terrorist country has a significant interest in the firm or subsidiary or, in the case of a subsidiary, the firm that owns the subsidiary, unless a waiver is granted by the Secretary of Defense.

(c) "Disclosure."

If the government of a terrorist country has a significant interest in the Offeror or a subsidiary of the Offeror, the Offeror shall disclose such interest in an attachment to its offer. If the Offeror is a subsidiary, it shall also disclose any significant interest the government of a terrorist country has in any firm that owns or controls the subsidiary. The disclosure shall include --

(1) Identification of each government holding a significant interest; and

(2) A description of the significant interest held by each government.

(End of provision)

252.247-7022 REPRESENTATION OF EXTENT OF TRANSPORTATION BY SEA (AUG 1992)

(a) The Offeror shall indicate by checking the appropriate blank in paragraph (b) of this provision whether transportation of supplies by sea is anticipated under the resultant contract. The term supplies is defined in the Transportation of Supplies by Sea clause of this solicitation.

(b) Representation. The Offeror represents that it:

____ (1) Does anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

____ (2) Does not anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

(c) Any contract resulting from this solicitation will include the Transportation of Supplies by Sea clause. If the Offeror represents that it will not use ocean transportation, the resulting contract will also include the Defense FAR Supplement clause at 252.247-7024, Notification of Transportation of Supplies by Sea.

(End of provision)

Section 00700 - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.202-1 Alt I	Definitions (Dec 2001) --Alternate I	MAY 2001
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	APR 1984
52.203-6	Restrictions On Subcontractor Sales To The Government	JUL 1995
52.203-7	Anti-Kickback Procedures	JUL 1995
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	JAN 1997
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	JAN 1997
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	JUN 1997
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	JUL 1995
52.211-15	Defense Priority And Allocation Requirements	SEP 1990
52.215-2	Audit and Records--Negotiation	JUN 1999
52.215-11	Price Reduction for Defective Cost or Pricing Data--Modifications	OCT 1997
52.215-13	Subcontractor Cost or Pricing Data--Modifications	OCT 1997
52.215-18	Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other than Pensions	OCT 1997
52.215-21	Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data--Modifications	OCT 1997
52.219-8	Utilization of Small Business Concerns	OCT 2000
52.219-9	Small Business Subcontracting Plan	JAN 2002
52.219-9 Alt II	Small Business Subcontracting Plan (Jan 2002) Alternate II	OCT 2001
52.219-14	Limitations On Subcontracting	DEC 1996
52.219-16	Liquidated Damages-Subcontracting Plan	JAN 1999
52.222-3	Convict Labor	AUG 1996
52.222-4	Contract Work Hours and Safety Standards Act - Overtime Compensation	SEP 2000
52.222-6	Davis Bacon Act	FEB 1995
52.222-7	Withholding of Funds	FEB 1988
52.222-8	Payrolls and Basic Records	FEB 1988
52.222-9	Apprentices and Trainees	FEB 1988
52.222-10	Compliance with Copeland Act Requirements	FEB 1988
52.222-11	Subcontracts (Labor Standards)	FEB 1988
52.222-12	Contract Termination-Debarment	FEB 1988
52.222-13	Compliance with Davis-Bacon and Related Act Regulations.	FEB 1988
52.222-14	Disputes Concerning Labor Standards	FEB 1988
52.222-15	Certification of Eligibility	FEB 1988
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	APR 2002
52.222-27	Affirmative Action Compliance Requirements for Construction	FEB 1999
52.222-30	Davis-Bacon Act--Price Adjustment (None or Separately Specified Method)	DEC 2001
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era and Other Eligible Veterans	DEC 2001

52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, and Other Eligible Veterans	DEC 2001
52.222-41	Service Contract Act Of 1965, As Amended	MAY 1989
52.223-3	Hazardous Material Identification And Material Safety Data	JAN 1997
52.223-5	Pollution Prevention and Right-to-Know Information	APR 1998
52.223-6	Drug Free Workplace	MAY 2001
52.223-14	Toxic Chemical Release Reporting	OCT 2000
52.225-9	Buy American Act--Construction Materials	MAY 2002
52.225-13	Restrictions on Certain Foreign Purchases	JUL 2000
52.227-1	Authorization and Consent	JUL 1995
52.227-2	Notice And Assistance Regarding Patent And Copyright Infringement	AUG 1996
52.227-4	Patent Indemnity-Construction Contracts	APR 1984
52.228-2	Additional Bond Security	OCT 1997
52.228-5	Insurance - Work On A Government Installation	JAN 1997
52.228-11	Pledges Of Assets	FEB 1992
52.228-12	Prospective Subcontractor Requests for Bonds	OCT 1995
52.228-15	Performance and Payment Bonds--Construction	JUL 2000
52.229-2	North Carolina State and Local Sales and Use Tax	APR 1984
52.229-3	Federal, State And Local Taxes	JAN 1991
52.229-5	Taxes--Contracts Performed In U S Possessions Or Puerto Rico	APR 1984
52.232-5	Payments under Fixed-Price Construction Contracts	SEP 2002
52.232-17	Interest	JUN 1996
52.232-23	Assignment Of Claims	JAN 1986
52.233-1	Disputes	JUL 2002
52.233-3	Protest After Award	AUG 1996
52.236-2	Differing Site Conditions	APR 1984
52.236-3	Site Investigation and Conditions Affecting the Work	APR 1984
52.236-5	Material and Workmanship	APR 1984
52.236-6	Superintendence by the Contractor	APR 1984
52.236-7	Permits and Responsibilities	NOV 1991
52.236-8	Other Contracts	APR 1984
52.236-9	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements	APR 1984
52.236-10	Operations and Storage Areas	APR 1984
52.236-11	Use and Possession Prior to Completion	APR 1984
52.236-12	Cleaning Up	APR 1984
52.236-13 Alt I	Accident Prevention (Nov 1991) - Alternate I	NOV 1991
52.236-15	Schedules for Construction Contracts	APR 1984
52.236-17	Layout of Work	APR 1984
52.236-21	Specifications and Drawings for Construction	FEB 1997
52.236-26	Preconstruction Conference	FEB 1995
52.242-13	Bankruptcy	JUL 1995
52.242-14	Suspension of Work	APR 1984
52.243-4	Changes	AUG 1987
52.244-5	Competition In Subcontracting	DEC 1996
52.248-3	Value Engineering-Construction	FEB 2000
52.249-2 Alt I	Termination for Convenience of the Government (Fixed-Price) (Sep 1996) - Alternate I	SEP 1996
52.249-10	Default (Fixed-Price Construction)	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.201-7000	Contracting Officer's Representative	DEC 1991

252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense- Contract-Related Felonies	MAR 1999
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense- Contract-Related Felonies	MAR 1999
252.203-7002	Display Of DOD Hotline Poster	DEC 1991
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.204-7004	Required Central Contractor Registration	NOV 2001
252.205-7000	Provisions Of Information To Cooperative Agreement Holders	DEC 1991
252.209-7000	Acquisition From Subcontractors Subject To On-Site Inspection Under The Intermediate Range Nuclear Forces (INF) Treaty	NOV 1995
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	MAR 1998
252.215-7000	Pricing Adjustments	DEC 1991
252.219-7003	Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan (DOD Contracts)	APR 1996
252.223-7004	Drug Free Work Force	SEP 1988
252.223-7006	Prohibition On Storage And Disposal Of Toxic And Hazardous Materials	APR 1993
252.225-7012	Preference For Certain Domestic Commodities	APR 2002
252.225-7031	Secondary Arab Boycott Of Israel	JUN 1992
252.226-7001	Utilization of Indian Organizations and Indian-Owned Economic Enterprises--DoD Contracts	SEP 2001
252.236-7000	Modification Proposals-Price Breakdown	DEC 1991
252.242-7000	Postaward Conference	DEC 1991
252.242-7004	Material Management And Accounting System	DEC 2000
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.244-7000	Subcontracts for Commercial Items and Commercial Components (DoD Contracts)	MAR 2000
252.247-7023	Transportation of Supplies by Sea	MAY 2002
252.247-7024	Notification Of Transportation Of Supplies By Sea	MAR 2000

CLAUSES INCORPORATED BY FULL TEXT

52.216-18 ORDERING. (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders or task orders by the individuals or activities designated in the Schedule. Such orders may be issued from the date of award through 12 month periods for Option Periods 1 and 2.

(b) All delivery orders or task orders are subject to the terms and conditions of this contract. In the event of conflict between a delivery order or task order and this contract, the contract shall control.

(c) If mailed, a delivery order or task order is considered "issued" when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

(End of clause)

52.216-19 ORDER LIMITATIONS. (OCT 1995)

(a) Minimum order. When the Government requires supplies or services covered by this contract in an amount of less than \$5,000.00, the Government is not obligated to purchase, nor is the Contractor obligated to furnish, those supplies or services under the contract.

(b) Maximum order. The Contractor is not obligated to honor:

(1) Any order for a single item in excess of \$2,000,000.00

(2) Any order for a combination of items in excess of \$2,000,000.00, or

(3) A series of orders from the same ordering office within ten (10) days that together call for quantities exceeding the limitation in subparagraph (1) or (2) above.

(c) If this is a requirements contract (i.e., includes the Requirements clause at subsection 52.216-21 of the Federal Acquisition Regulation (FAR)), the Government is not required to order a part of any one requirement from the Contractor if that requirement exceeds the maximum-order limitations in paragraph (b) above.

(d) Notwithstanding paragraphs (b) and (c) above, the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within ten (10) days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source.

(End of clause)

52.216-22 INDEFINITE QUANTITY. (OCT 1995)

(a) This is an indefinite-quantity contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not purchased by this contract.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in the Schedule up to and including the quantity designated in the Schedule as the "maximum". The Government shall order at least the quantity of supplies or services designated in the Schedule as the "minimum".

(c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after 12 months after award of contract, and 12 months after each option period is exercised.

(End of clause)

52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR 2000)

- (a) The Government may extend the term of this contract by written notice to the Contractor provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least sixty (60) days before contract expires. The preliminary notice does not commit the Government to an extension.
- (b) If the Government exercises this option, the extended contract shall be considered to include this option clause.
- (c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed three years from time of contract award.
(End of clause)

52.219-4 NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS (JAN 1999)

- (a) Definition. HUBZone small business concern, as used in this clause, means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.
- (b) Evaluation preference. (1) Offers will be evaluated by adding a factor of 10 percent to the price of all offers, except--
 - (i) Offers from HUBZone small business concerns that have not waived the evaluation preference;
 - (ii) Otherwise successful offers from small business concerns;
 - (iii) Otherwise successful offers of eligible products under the Trade Agreements Act when the dollar threshold for application of the Act is exceeded (see 25.402 of the Federal Acquisition Regulation (FAR)); and
 - (iv) Otherwise successful offers where application of the factor would be inconsistent with a Memorandum of Understanding or other international agreement with a foreign government.
- (2) The factor of 10 percent shall be applied on a line item basis or to any group of items on which award may be made. Other evaluation factors described in the solicitation shall be applied before application of the factor.
- (3) A concern that is both a HUBZone small business concern and a small disadvantaged business concern will receive the benefit of both the HUBZone small business price evaluation preference and the small disadvantaged business price evaluation adjustment (see FAR clause 52.219-23). Each applicable price evaluation preference or adjustment shall be calculated independently against an offeror's base offer.

These individual preference amounts shall be added together to arrive at the total evaluated price for that offer.

- (c) Waiver of evaluation preference. A HUBZone small business concern may elect to waive the evaluation preference, in which case the factor will be added to its offer for evaluation purposes. The agreements in paragraph (d) of this clause do not apply if the offeror has waived the evaluation preference.

___ Offeror elects to waive the evaluation preference.

- (d) Agreement. A HUBZone small business concern agrees that in the performance of the contract, in the case of a contract for

- (1) Services (except construction), at least 50 percent of the cost of personnel for contract performance will be spent for employees of the concern or employees of other HUBZone small business concerns;

(2) Supplies (other than procurement from a nonmanufacturer of such supplies), at least 50 percent of the cost of manufacturing, excluding the cost of materials, will be performed by the concern or other HUBZone small business concerns;

(3) General construction, at least 15 percent of the cost of the contract performance incurred for personnel will be spent on the concern's employees or the employees of other HUBZone small business concerns; or

(4) Construction by special trade contractors, at least 25 percent of the cost of the contract performance incurred for personnel will be spent on the concern's employees or the employees of other HUBZone small business concerns.

(e) A HUBZone joint venture agrees that in the performance of the contract, the applicable percentage specified in paragraph (d) of this clause will be performed by the HUBZone small business participant or participants.

(f) A HUBZone small business concern nonmanufacturer agrees to furnish in performing this contract only end items manufactured or produced by HUBZone small business manufacturer concerns. This paragraph does not apply in connection with construction or service contracts.

(End of clause)

52.223-4 RECOVERED MATERIAL CERTIFICATION (OCT 1997)

As required by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6962(c)(3)(A)(i)), the offeror certifies, by signing this offer, that the percentage of recovered materials to be used in the performance of the contract will be at least the amount required by the applicable contract specifications.

(End of provision)

52.228-1 BID GUARANTEE (SEP 1996)

(a) Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.

(b) The bidder shall furnish a bid guarantee in the form of a firm commitment, e.g., bid bond supported by good and sufficient surety or sureties acceptable to the Government, postal money order, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department regulations, certain bonds or notes of the United States. The Contracting Officer will return bid guarantees, other than bid bonds, (1) to unsuccessful bidders as soon as practicable after the opening of bids, and (2) to the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.-

(c) The amount of the bid guarantee shall be twenty (20) percent of the bid price or \$3,000,000 whichever is less.-

(d) If the successful bidder, upon acceptance of its bid by the Government within the period specified for acceptance, fails to execute all contractual documents or furnish executed bond(s) within 10 days after receipt of the forms by the bidder, the Contracting Officer may terminate the contract for default.-

(e) In the event the contract is terminated for default, the bidder is liable for any cost of acquiring the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference.

(End of clause)

52.228-14 IRREVOCABLE LETTER OF CREDIT (DEC 1999)

(a) "Irrevocable letter of credit" (ILC), as used in this clause, means a written commitment by a federally insured financial institution to pay all or part of a stated amount of money, until the expiration date of the letter, upon presentation by the Government (the beneficiary) of a written demand therefor. Neither the financial institution nor the offeror/Contractor can revoke or condition the letter of credit.

(b) If the offeror intends to use an ILC in lieu of a bid bond, or to secure other types of bonds such as performance and payment bonds, the letter of credit and letter of confirmation formats in paragraphs (e) and (f) of this clause shall be used.

(c) The letter of credit shall be irrevocable, shall require presentation of no document other than a written demand and the ILC (including confirming letter, if any), shall be issued/confirmed by an acceptable federally insured financial institution as provided in paragraph (d) of this clause, and--

(1) If used as a bid guarantee, the ILC shall expire no earlier than 60 days after the close of the bid acceptance period;

(2) If used as an alternative to corporate or individual sureties as security for a performance or payment bond, the offeror/Contractor may submit an ILC with an initial expiration date estimated to cover the entire period for which financial security is required or may submit an ILC with an initial expiration date that is a minimum period of one year from the date of issuance. The ILC shall provide that, unless the issuer provides the beneficiary written notice of non-renewal at least 60 days in advance of the current expiration date, the ILC is automatically extended without amendment for one year from the expiration date, or any future expiration date, until the period of required coverage is completed and the Contracting Officer provides the financial institution with a written statement waiving the right to payment. The period of required coverage shall be:

(i) For contracts subject to the Miller Act, the later of--

(A) One year following the expected date of final payment;

(B) For performance bonds only, until completion of any warranty period; or

(C) For payment bonds only, until resolution of all claims filed against the payment bond during the one-year period following final payment.

(ii) For contracts not subject to the Miller Act, the later of--

(A) 90 days following final payment; or

(B) For performance bonds only, until completion of any warranty period.

(d) Only federally insured financial institutions rated investment grade or higher shall issue or confirm the ILC. The offeror/Contractor shall provide the Contracting Officer a credit rating that indicates the financial institution has the required rating(s) as of the date of issuance of the ILC. Unless the financial institution issuing the ILC had letter of credit business of less than \$25 million in the past year, ILCs over \$5 million must be confirmed by another acceptable financial institution that had letter of credit business of less than \$25 million in the past year.

(e) The following format shall be used by the issuing financial institution to create an ILC:

[Issuing Financial Institution's Letterhead or Name and Address]

Issue Date _____

IRREVOCABLE LETTER OF CREDIT NO. _____

Account party's name _____

Account party's address _____

For Solicitation No. _____(for reference only)

TO: [U.S. Government agency]

[U.S. Government agency's address]

1. We hereby establish this irrevocable and transferable Letter of Credit in your favor for one or more drawings up to United States \$_____. This Letter of Credit is payable at [issuing financial institution's and, if any, confirming financial institution's] office at [issuing financial institution's address and, if any, confirming financial institution's address] and expires with our close of business on _____, or any automatically extended expiration date.

2. We hereby undertake to honor your or the transferee's sight draft(s) drawn on the issuing or, if any, the confirming financial institution, for all or any part of this credit if presented with this Letter of Credit and confirmation, if any, at the office specified in paragraph 1 of this Letter of Credit on or before the expiration date or any automatically extended expiration date.

3. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for one year from the expiration date hereof, or any future expiration date, unless at least 60 days prior to any expiration date, we notify you or the transferee by registered mail, or other receipted means of delivery, that we elect not to consider this Letter of Credit renewed for any such additional period. At the time we notify you, we also agree to notify the account party (and confirming financial institution, if any) by the same means of delivery.

4. This Letter of Credit is transferable. Transfers and assignments of proceeds are to be effected without charge to either the beneficiary or the transferee/assignee of proceeds. Such transfer or assignment shall be only at the written direction of the Government (the beneficiary) in a form satisfactory to the issuing financial institution and the confirming financial institution, if any.

5. This Letter of Credit is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ [state of confirming financial institution, if any, otherwise state of issuing financial institution].

6. If this credit expires during an interruption of business of this financial institution as described in Article 17 of the UCP, the financial institution specifically agrees to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

[Issuing financial institution]

(f) The following format shall be used by the financial institution to confirm an ILC:

[Confirming Financial Institution's Letterhead or Name and Address]

(Date) _____

Our Letter of Credit Advice Number _____

Beneficiary: _____ [U.S. Government agency]

Issuing Financial Institution: _____

Issuing Financial Institution's LC No.: _____

Gentlemen:

1. We hereby confirm the above indicated Letter of Credit, the original of which is attached, issued by _____ [name of issuing financial institution] for drawings of up to United States dollars _____/U.S. \$ _____ and expiring with our close of business on _____ [the expiration date], or any automatically extended expiration date.

2. Draft(s) drawn under the Letter of Credit and this Confirmation are payable at our office located at _____.

3. We hereby undertake to honor sight draft(s) drawn under and presented with the Letter of Credit and this Confirmation at our offices as specified herein.

4. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this confirmation that it be deemed automatically extended without amendment for one year from the expiration date hereof, or any automatically extended expiration date, unless:

(a) At least 60 days prior to any such expiration date, we shall notify the Contracting Officer, or the transferee and the issuing financial institution, by registered mail or other receipted means of delivery, that we elect not to consider this confirmation extended for any such additional period; or

(b) The issuing financial institution shall have exercised its right to notify you or the transferee, the account party, and ourselves, of its election not to extend the expiration date of the Letter of Credit.

5. This confirmation is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ [state of confirming financial institution].

6. If this confirmation expires during an interruption of business of this financial institution as described in Article 17 of the UCP, we specifically agree to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

[Confirming financial institution]

(g) The following format shall be used by the Contracting Officer for a sight draft to draw on the Letter of Credit:

SIGHT DRAFT

[City, State]

(Date) _____

[Name and address of financial institution]

Pay to the order of _____ [Beneficiary Agency] _____ the sum of United States \$_____.
This draft is drawn under Irrevocable Letter of Credit No. _____.

[Beneficiary Agency]

By: _____

(End of clause)

52.232-27 PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS (FEB 2002)

Notwithstanding any other payment terms in this contract, the Government will make invoice payments under the terms and conditions specified in this clause. The Government considers payment as being made on the day a check is dated or the date of an electronic funds transfer. Definitions of pertinent terms are set forth in sections 2.101, 32.001, and 32.902 of the Federal Acquisition Regulation. All days referred to in this clause are calendar days, unless otherwise specified. (However, see paragraph (a)(3) concerning payments due on Saturdays, Sundays, and legal holidays.)

(a) Invoice payments--(1) Types of invoice payments. For purposes of this clause, there are several types of invoice payments that may occur under this contract, as follows:

(i) Progress payments, if provided for elsewhere in this contract, based on Contracting Officer approval of the estimated amount and value of work or services performed, including payments for reaching milestones in any project.

(A) The due date for making such payments is 14 days after the designated billing office receives a proper payment request. If the designated billing office fails to annotate the payment request with the actual date of receipt at the time of receipt, the payment due date is the 14th day after the date of the Contractor's payment request, provided the designated billing office receives a proper payment request and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(B) The due date for payment of any amounts retained by the Contracting Officer in accordance with the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts, is as specified in the contract or, if not specified, 30 days after approval by the Contracting Officer for release to the Contractor.

(ii) Final payments based on completion and acceptance of all work and presentation of release of all claims against the Government arising by virtue of the contract, and payments for partial deliveries that have been accepted by the Government (e.g., each separate building, public work, or other division of the contract for which the price is stated separately in the contract).

(A) The due date for making such payments is the later of the following two events:

(1) The 30th day after the designated billing office receives a proper invoice from the Contractor.

(2) The 30th day after Government acceptance of the work or services completed by the Contractor. For a final invoice when the payment amount is subject to contract settlement actions (e.g., release of claims), acceptance is deemed to occur on the effective date of the contract settlement.

(B) If the designated billing office fails to annotate the invoice with the date of actual receipt at the time of receipt, the invoice payment due date is the 30th day after the date of the Contractor's invoice, provided the designated billing office receives a proper invoice and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(2) Contractor's invoice. The Contractor shall prepare and submit invoices to the designated billing office specified in the contract. A proper invoice must include the items listed in paragraphs (a)(2)(i) through (a)(2)(xi) of this clause. If the invoice does not comply with these requirements, the designated billing office must return it within 7 days after receipt, with the reasons why it is not a proper invoice. When computing any interest penalty owed the Contractor, the Government will take into account if the Government notifies the Contractor of an improper invoice in an untimely manner.

(i) Name and address of the Contractor.

(ii) Invoice date and invoice number. (The Contractor should date invoices as close as possible to the date of mailing or transmission.)

(iii) Contract number or other authorization for work or services performed (including order number and contract line item number).

(iv) Description of work or services performed.

(v) Delivery and payment terms (e.g., discount for prompt payment terms).

(vi) Name and address of Contractor official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).

(vii) Name (where practicable), title, phone number, and mailing address of person to notify in the event of a defective invoice.

(viii) For payments described in paragraph (a)(1)(i) of this clause, substantiation of the amounts requested and certification in accordance with the requirements of the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts.

(ix) Taxpayer Identification Number (TIN). The Contractor shall include its TIN on the invoice only if required elsewhere in this contract.

(x) Electronic funds transfer (EFT) banking information.

(A) The Contractor shall include EFT banking information on the invoice only if required elsewhere in this contract.

(B) If EFT banking information is not required to be on the invoice, in order for the invoice to be a proper invoice, the Contractor shall have submitted correct EFT banking information in accordance with the applicable solicitation provision (e.g., 52.232-38, Submission of Electronic Funds Transfer Information with Offer), contract clause (e.g., 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration, or 52.232-34, Payment by Electronic Funds Transfer--Other Than Central Contractor Registration), or applicable agency procedures.

(C) EFT banking information is not required if the Government waived the requirement to pay by EFT.

(xi) Any other information or documentation required by the contract.

(3) Interest penalty. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if payment is not made by the due date and the conditions listed in paragraphs (a)(3)(i) through (a)(3)(iii) of this clause are met, if applicable. However, when the due date falls on a Saturday, Sunday, or legal holiday, the designated payment office may make payment on the following working day without incurring a late payment interest penalty.

(i) The designated billing office received a proper invoice.

(ii) The Government processed a receiving report or other Government documentation authorizing payment and there was no disagreement over quantity, quality, Contractor compliance with any contract term or condition, or requested progress payment amount.

(iii) In the case of a final invoice for any balance of funds due the Contractor for work or services performed, the amount was not subject to further contract settlement actions between the Government and the Contractor.

(4) Computing penalty amount. The Government will compute the interest penalty in accordance with the Office of Management and Budget prompt payment regulations at 5 CFR part 1315.

(i) For the sole purpose of computing an interest penalty that might be due the Contractor for payments described in paragraph (a)(1)(ii) of this clause, Government acceptance or approval is deemed to occur constructively on the 7th day after the Contractor has completed the work or services in accordance with the terms and conditions of the contract. If actual acceptance or approval occurs within the constructive acceptance or approval period, the Government will base the determination of an interest penalty on the actual date of acceptance or approval. Constructive acceptance or constructive approval requirements do not apply if there is a disagreement over quantity, quality, or Contractor compliance with a contract provision. These requirements also do not compel Government officials to accept work or services, approve Contractor estimates, perform contract administration functions, or make payment prior to fulfilling their responsibilities.

(ii) The prompt payment regulations at 5 CFR 1315.10(c) do not require the Government to pay interest penalties if payment delays are due to disagreement between the Government and the Contractor over the payment amount or other issues involving contract compliance, or on amounts temporarily withheld or retained in accordance with the terms of the contract. The Government and the Contractor shall resolve claims involving disputes, and any interest that may be payable in accordance with the clause at FAR 52.233-1, Disputes.

(5) Discounts for prompt payment. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if the Government takes a discount for prompt payment improperly. The Government will calculate the interest penalty in accordance with the prompt payment regulations at 5 CFR part 1315.

(6) Additional interest penalty. (i) The designated payment office will pay a penalty amount, calculated in accordance with the prompt payment regulations at 5 CFR part 1315 in addition to the interest penalty amount only if--

(A) The Government owes an interest penalty of \$1 or more;

(B) The designated payment office does not pay the interest penalty within 10 days after the date the invoice amount is paid; and

(C) The Contractor makes a written demand to the designated payment office for additional penalty payment, in accordance with paragraph (a)(6)(ii) of this clause, postmarked not later than 40 days after the date the invoice amount is paid.

(ii)(A) The Contractor shall support written demands for additional penalty payments with the following data. The Government will not request any additional data. The Contractor shall--

(1) Specifically assert that late payment interest is due under a specific invoice, and request payment of all overdue late payment interest penalty and such additional penalty as may be required;

(2) Attach a copy of the invoice on which the unpaid late payment interest was due; and

(3) State that payment of the principal has been received, including the date of receipt.

(B) If there is no postmark or the postmark is illegible--

(1) The designated payment office that receives the demand will annotate it with the date of receipt provided the demand is received on or before the 40th day after payment was made; or

(2) If the designated payment office fails to make the required annotation, the Government will determine the demand's validity based on the date the Contractor has placed on the demand, provided such date is no later than the 40th day after payment was made.

(b) Contract financing payments. If this contract provides for contract financing, the Government will make contract financing payments in accordance with the applicable contract financing clause.

(c) Subcontract clause requirements. The Contractor shall include in each subcontract for property or services (including a material supplier) for the purpose of performing this contract the following:

(1) Prompt payment for subcontractors. A payment clause that obligates the Contractor to pay the subcontractor for satisfactory performance under its subcontract not later than 7 days from receipt of payment out of such amounts as are paid to the Contractor under this contract.

(2) Interest for subcontractors. An interest penalty clause that obligates the Contractor to pay to the subcontractor an interest penalty for each payment not made in accordance with the payment clause--

(i) For the period beginning on the day after the required payment date and ending on the date on which payment of the amount due is made; and

(ii) Computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(3) Subcontractor clause flowdown. A clause requiring each subcontractor to use:

(i) Include a payment clause and an interest penalty clause conforming to the standards set forth in paragraphs (c)(1) and (c)(2) of this clause in each of its subcontracts; and

(ii) Require each of its subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or supplier.

(d) Subcontract clause interpretation. The clauses required by paragraph (c) of this clause shall not be construed to impair the right of the Contractor or a subcontractor at any tier to negotiate, and to include in their subcontract, provisions that--

(1) Retainage permitted. Permit the Contractor or a subcontractor to retain (without cause) a specified percentage of each progress payment otherwise due to a subcontractor for satisfactory performance under the subcontract without

incurring any obligation to pay a late payment interest penalty, in accordance with terms and conditions agreed to by the parties to the subcontract, giving such recognition as the parties deem appropriate to the ability of a subcontractor to furnish a performance bond and a payment bond;

(2) Withholding permitted. Permit the Contractor or subcontractor to make a determination that part or all of the subcontractor's request for payment may be withheld in accordance with the subcontract agreement; and

(3) Withholding requirements. Permit such withholding without incurring any obligation to pay a late payment penalty if--

(i) A notice conforming to the standards of paragraph (g) of this clause previously has been furnished to the subcontractor; and

(ii) The Contractor furnishes to the Contracting Officer a copy of any notice issued by a Contractor pursuant to paragraph (d)(3)(i) of this clause.

(e) Subcontractor withholding procedures. If a Contractor, after making a request for payment to the Government but before making a payment to a subcontractor for the subcontractor's performance covered by the payment request, discovers that all or a portion of the payment otherwise due such subcontractor is subject to withholding from the subcontractor in accordance with the subcontract agreement, then the Contractor shall--

(1) Subcontractor notice. Furnish to the subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon ascertaining the cause giving rise to a withholding, but prior to the due date for subcontractor payment;

(2) Contracting Officer notice. Furnish to the Contracting Officer, as soon as practicable, a copy of the notice furnished to the subcontractor pursuant to paragraph (e)(1) of this clause;

(3) Subcontractor progress payment reduction. Reduce the subcontractor's progress payment by an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (e)(1) of this clause;

(4) Subsequent subcontractor payment. Pay the subcontractor as soon as practicable after the correction of the identified subcontract performance deficiency, and--

(i) Make such payment within--

(A) Seven days after correction of the identified subcontract performance deficiency (unless the funds therefor must be recovered from the Government because of a reduction under paragraph (e)(5)(i)) of this clause; or

(B) Seven days after the Contractor recovers such funds from the Government; or

(ii) Incur an obligation to pay a late payment interest penalty computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty;

(5) Notice to Contracting Officer. Notify the Contracting Officer upon--

(i) Reduction of the amount of any subsequent certified application for payment; or

(ii) Payment to the subcontractor of any withheld amounts of a progress payment, specifying--

(A) The amounts withheld under paragraph (e)(1) of this clause; and

(B) The dates that such withholding began and ended; and

(6) Interest to Government. Be obligated to pay to the Government an amount equal to interest on the withheld payments (computed in the manner provided in 31 U.S.C. 3903(c)(1)), from the 8th day after receipt of the withheld amounts from the Government until--

(i) The day the identified subcontractor performance deficiency is corrected; or

(ii) The date that any subsequent payment is reduced under paragraph (e)(5)(i) of this clause.

(f) Third-party deficiency reports--(1) Withholding from subcontractor. If a Contractor, after making payment to a first-tier subcontractor, receives from a supplier or subcontractor of the first-tier subcontractor (hereafter referred to as a "second-tier subcontractor") a written notice in accordance with section 2 of the Act of August 24, 1935 (40 U.S.C. 270b, Miller Act), asserting a deficiency in such first-tier subcontractor's performance under the contract for which the Contractor may be ultimately liable, and the Contractor determines that all or a portion of future payments otherwise due such first-tier subcontractor is subject to withholding in accordance with the subcontract agreement, the Contractor may, without incurring an obligation to pay an interest penalty under paragraph (e)(6) of this clause--

(i) Furnish to the first-tier subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon making such determination; and

(ii) Withhold from the first-tier subcontractor's next available progress payment or payments an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (f)(1)(i) of this clause.

(2) Subsequent payment or interest charge. As soon as practicable, but not later than 7 days after receipt of satisfactory written notification that the identified subcontract performance deficiency has been corrected, the Contractor shall--

(i) Pay the amount withheld under paragraph (f)(1)(ii) of this clause to such first-tier subcontractor; or

(ii) Incur an obligation to pay a late payment interest penalty to such first-tier subcontractor computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(g) Written notice of subcontractor withholding. The Contractor shall issue a written notice of any withholding to a subcontractor (with a copy furnished to the Contracting Officer), specifying--

(1) The amount to be withheld;

(2) The specific causes for the withholding under the terms of the subcontract; and

(3) The remedial actions to be taken by the subcontractor in order to receive payment of the amounts withheld.

(h) Subcontractor payment entitlement. The Contractor may not request payment from the Government of any amount withheld or retained in accordance with paragraph (d) of this clause until such time as the Contractor has determined and certified to the Contracting Officer that the subcontractor is entitled to the payment of such amount.

(i) Prime-subcontractor disputes. A dispute between the Contractor and subcontractor relating to the amount or entitlement of a subcontractor to a payment or a late payment interest penalty under a clause included in the subcontract pursuant to paragraph (c) of this clause does not constitute a dispute to which the Government is a party. The Government may not be interpleaded in any judicial or administrative proceeding involving such a dispute.

(j) Preservation of prime-subcontractor rights. Except as provided in paragraph (i) of this clause, this clause shall not limit or impair any contractual, administrative, or judicial remedies otherwise available to the Contractor or a subcontractor in the event of a dispute involving late payment or nonpayment by the Contractor or deficient subcontract performance or nonperformance by a subcontractor.

(k) Non-recourse for prime contractor interest penalty. The Contractor's obligation to pay an interest penalty to a subcontractor pursuant to the clauses included in a subcontract under paragraph (c) of this clause shall not be construed to be an obligation of the Government for such interest penalty. A cost-reimbursement claim may not include any amount for reimbursement of such interest penalty.

(l) Overpayments. If the Contractor becomes aware of a duplicate payment or that the Government has otherwise overpaid on an invoice payment, the Contractor shall immediately notify the Contracting Officer and request instructions for disposition of the overpayment.

(End of clause)

52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER—CENTRAL CONTRACTOR REGISTRATION (MAY 1999)

(a) Method of payment. (1) All payments by the Government under this contract shall be made by electronic funds transfer (EFT), except as provided in paragraph (a)(2) of this clause. As used in this clause, the term "EFT" refers to the funds transfer and may also include the payment information transfer.

(2) In the event the Government is unable to release one or more payments by EFT, the Contractor agrees to either--

(i) Accept payment by check or some other mutually agreeable method of payment; or

(ii) Request the Government to extend the payment due date until such time as the Government can make payment by EFT (but see paragraph (d) of this clause).

(b) Contractor's EFT information. The Government shall make payment to the Contractor using the EFT information contained in the Central Contractor Registration (CCR) database. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the CCR database.

(c) Mechanisms for EFT payment. The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated Clearing House Association, or the Fedwire Transfer System. The rules governing Federal payments through the ACH are contained in 31 CFR part 210.

(d) Suspension of payment. If the Contractor's EFT information in the CCR database is incorrect, then the Government need not make payment to the Contractor under this contract until correct EFT information is entered into the CCR database; and any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

(e) Contractor EFT arrangements. If the Contractor has identified multiple payment receiving points (i.e., more than one remittance address and/or EFT information set) in the CCR database, and the Contractor has not notified the Government of the payment receiving point applicable to this contract, the Government shall make payment to the first payment receiving point (EFT information set or remittance address as applicable) listed in the CCR database.

(f) Liability for uncompleted or erroneous transfers. (1) If an uncompleted or erroneous transfer occurs because the Government used the Contractor's EFT information incorrectly, the Government remains responsible for--

(i) Making a correct payment;

(ii) Paying any prompt payment penalty due; and

(iii) Recovering any erroneously directed funds.

(2) If an uncompleted or erroneous transfer occurs because the Contractor's EFT information was incorrect, or was revised within 30 days of Government release of the EFT payment transaction instruction to the Federal Reserve System, and--

(i) If the funds are no longer under the control of the payment office, the Government is deemed to have made payment and the Contractor is responsible for recovery of any erroneously directed funds; or

(ii) If the funds remain under the control of the payment office, the Government shall not make payment, and the provisions of paragraph (d) of this clause shall apply.

(g) EFT and prompt payment. A payment shall be deemed to have been made in a timely manner in accordance with the prompt payment terms of this contract if, in the EFT payment transaction instruction released to the Federal Reserve System, the date specified for settlement of the payment is on or before the prompt payment due date, provided the specified payment date is a valid date under the rules of the Federal Reserve System.

(h) EFT and assignment of claims. If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee shall register in the CCR database and shall be paid by EFT in accordance with the terms of this clause. In all respects, the requirements of this clause shall apply to the assignee as if it were the Contractor. EFT information that shows the ultimate recipient of the transfer to be other than the Contractor, in the absence of a proper assignment of claims acceptable to the Government, is incorrect EFT information within the meaning of paragraph (d) of this clause.

(i) Liability for change of EFT information by financial agent. The Government is not liable for errors resulting from changes to EFT information made by the Contractor's financial agent.

(j) Payment information. The payment or disbursing office shall forward to the Contractor available payment information that is suitable for transmission as of the date of release of the EFT instruction to the Federal Reserve System. The Government may request the Contractor to designate a desired format and method(s) for delivery of payment information from a list of formats and methods the payment office is capable of executing. However, the Government does not guarantee that any particular format or method of delivery is available at any particular payment office and retains the latitude to use the format and delivery method most convenient to the Government. If the Government makes payment by check in accordance with paragraph (a) of this clause, the Government shall mail the payment information to the remittance address contained in the CCR database.

(End of Clause)

52.239-4001 Year 2000 Compliance

The contractor shall ensure products provided under this contract, to include hardware, software, firmware, and middleware, whether acting alone or combined as a system, are Year 2000 compliant as defined as follows: Year 2000 compliant means with respect to information technology, that the information technology accurately processes date/time data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the

twentieth and twenty-first centuries, and the years 1999 and 2000 and leap year calculations, to the extent that other information, used in combination with the information technology being acquired, properly exchanges date/time data with it.

52.239-4005 Year 2000 Compliance - Construction Contracts

a. In accordance with FAR 39.106, the contractor shall ensure that with respect to any design, construction, goods, or services under this contract as well as any subsequent task/delivery orders issued under this contract (if applicable), all information technology contained therein shall be Year 2000 compliant. Specifically:

The contractor shall:

(1) Perform, maintain, and provide an inventory of all major components to include structures, equipment, items, parts, and furnishings under this contract and each task/delivery order which may be affected by the Y2K compliance requirement.

(2) Indicate whether each component is currently Year 2000 compliant or requires an upgrade for compliance prior to government acceptance.

(End of Clause)

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://farsite.hill.af.mil>

(End of clause)

Section 00800 - Special Contract Requirements

CLAUSES INCORPORATED BY FULL TEXT

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to (a) commence work under this contract within 5 calendar days after the date the contractor receives the notice to proceed, prosecute the work diligently, and (c) complete the entire work ready for use not later than the completion time specified on the task order. The time stated for completion shall include final cleanup of the premises.

(End of clause)

52.211-12 LIQUIDATED DAMAGES--CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the sum stated in each task order for each day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

52.219-4002 REPORTING REQUIREMENTS--SUBCONTRACTING PLAN (CESAD-CT JUL 1993)

(a) Retainage will be withheld from progress payments in an amount sufficient to protect the Government's ability to assess Liquidated Damages in accordance with FAR clause 52.219-0016 for failure to submit timely SF 294 and SF 295 Reports. The amount of retainage will be determined in accordance with the following formula:

(b) Total dollar amount proposed for subcontracting to small business multiplied by percentage of actual progress on the contract, up to a maximum of 10% of the given progress payment, shall be withheld from the next progress payment due after a contractor fails to submit a required report. If one or more reports have been submitted before such failure, formula for determining the amount of retainage will be adjusted by deducting any amounts reported as subcontracted to small business from the total dollar amount proposed to be subcontracted and the difference multiplied by the percent of actual progress, up to a maximum of 10% of the given progress payment.

(End of clause)

52.223-9 ESTIMATE OF PERCENTAGE OF RECOVERED MATERIAL CONTENT FOR EPA-DESIGNATED PRODUCTS (AUG 2000)

(a) Definitions. As used in this clause--

Postconsumer material means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of "recovered material."

Recovered material means waste materials and by-products recovered or diverted from solid waste, but the term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process.

(b) The Contractor, on completion of this contract, shall--

(1) Estimate the percentage of the total recovered material used in contract performance, including, if applicable, the percentage of postconsumer material content; and

(2) Submit this estimate to U.S. Army Engineer District, Savannah
ATTN: CESAS-CT-C
100 West Oglethorpe Avenue
Savannah, GA 31401-3640

(End of clause)

52.223-4002 U.S. ARMY CORPS OF ENGINEERS SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1

This paragraph applies to contracts and purchase orders that require the contractor to comply with EM 385-1-1 (e.g., contracts that include the Accident Prevention clause at FAR 52.236-13 and/or other safety provisions). EM 385-1-1 and its changes are available at <http://www.hq.usace.army.mil>. (At the HQ homepage, select Safety and Occupational Health.) The Contractor shall be responsible for complying with the current edition and all changes posted on the web through the date that is 10 calendar days prior to the date offers are due. If the solicitation is amended to extend the time set for receipt of offers, the 10 calendar days rule stated above shall be applied against the amended date. (For example, if offers are due on 10 April, all changes posted on or before 31 March shall apply to the contract. If the time for receipt of offers is extended from 10 April to 20 April, all changes posted on or before 10 April shall apply to the contract.)

52.228-4002 REQUIRED INSURANCE (FEB 1987 SAS) (Ref. FAR 28.307)

(a) The Contractor shall procure and maintain during the entire period of his performance under this contract the following minimum insurance:

Comprehensive and Employer's Liability Insurance in the amount required by the State law in which the work is to be performed under this contract.

Comprehensive General Liability Insurance in an amount not less than \$500,000 per accident.

Automobile Liability Insurance: \$200,000 per person and \$500,000 per accident for bodily injury liability and \$20,000 property damage liability.

(b) Prior to the commencement of work hereunder, the Contractor shall furnish to the Contracting Officer a certificate or written statement of the above-required insurance. The policies evidencing required insurance shall contain an endorsement to the effect that cancellation, or any material change in the policies adversely affecting the interests of the Government in such insurance, shall not be effective for such period as may be prescribed by the laws of the State in which this contract is to be performed and in no event less than 30 days after written notice thereof to the Contracting Officer.

(c) The Contractor agrees to insert the substance of this clause, including this subparagraph (c), in all subcontracts hereunder.

(End of clause)

52.232-4007 ACCOUNTING AND APPROPRIATION DATA (APR 1989 CESAS-RM)

Will be determined per task order.

(End of clause)

52.232-4008 DESIGNATED BILLING OFFICE (APR 1989 CESAS-RM)

Invoices will be mailed to:

Will be annotated per individual task order.

(End of Clause)

52.232-4009 DESIGNATED PAYMENT OFFICE (AUG 1998 CESAS-RM-F)

Payment will be made by:

U.S. Army Corps of Engineers Finance Center

ATTN: CEFC-AO-P

5720 Integrity Drive

Millington, TN 38054-5005

(End of clause)

52.236-1 PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984)

The Contractor shall perform on the site, and with its own organization, work equivalent to at least **twenty (20)** percent of the total amount of work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.

(End of clause)

52.236-14 AVAILABILITY AND USE OF UTILITY SERVICES (APR 1984)

(a) The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the Government or, where the utility is produced by the Government, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

(b) The Contractor, at its expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install

and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

(End of clause)

52.236-4013 CONTRACTOR-PREPARED NETWORK ANALYSIS SYSTEM
(January 2002 SAS) (Ref. DFARS 236.273)

The progress chart to be prepared by the contractor pursuant to FAR 52.236-15, Schedules for Construction Contracts, shall utilize the Critical Path Method (CPM) of network calculation. (See Attachment 1 to Section 00800).

52.236-4015 PRECONSTRUCTION CONFERENCE (OCT 1988 SAS) (Ref. FAR 36.305)

(a) A preconstruction conference will be arranged by the Area/Resident Engineer after award of contract and before commencement of work. The Area/Resident Engineer will notify the Contractor of the time and date set for the meeting. At this conference, the Contractor shall be oriented with respect to Government procedures and line of authority, contractual, administrative, and construction matters.

(b) The Contractor shall bring to this conference, in completed form, a Certificate of Insurance, plus the following items in either completed or draft form:

- Accident Prevention Plan (5 copies)
(use format shown in Attachment 1 to SECTION 00800)
- Quality Control Plan (5 copies)
- Letter Appointing Superintendent
- Transmittal Register
- Power of Attorney and Certified Copy of Resolution
- Network Analysis System, when applicable
- List of Subcontractors

(c) A letter of record will be written documenting all items discussed at the conference, and a copy will be furnished by the Area/Resident Engineer to all in attendance.

(End of clause)

52.236-4017 SUBMITTAL OF MODIFICATION COST ESTIMATE PROPOSALS (MAR 1992 SAS)
(Ref. DFARS 52.236-7000)

When submittals of Cost Estimate Proposals are required for additions or deletions to work under this contract by modification, the Contractor shall use DA Form 5418-R titled "Cost Estimate Analysis" (see Attachment 1 to SECTION 00800). A separate assemblage will be prepared for submittal by each trade affected by the proposed work.

(End of clause)

52.246-12 INSPECTION OF CONSTRUCTION (AUG 1996)

(a) Definition. "Work" includes, but is not limited to, materials, workmanship, and manufacture and fabrication of components.

(b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. The Contractor shall maintain complete inspection records and make them available to the Government. All work shall be conducted under the general direction of the Contracting Officer and is subject to Government inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

(c) Government inspections and tests are for the sole benefit of the Government and do not--

(1) Relieve the Contractor of responsibility for providing adequate quality control measures;

(2) Relieve the Contractor of responsibility for damage to or loss of the material before acceptance;

(3) Constitute or imply acceptance; or

(4) Affect the continuing rights of the Government after acceptance of the completed work under paragraph (i) of this section.

(d) The presence or absence of a Government inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Contracting Officer's written authorization.

(e) The Contractor shall promptly furnish, at no increase in contract price, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The Government may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The Government shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(f) The Contractor shall, without charge, replace or correct work found by the Government not to conform to contract requirements, unless in the public interest the Government consents to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

(g) If the Contractor does not promptly replace or correct rejected work, the Government may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor or (2) terminate for default the Contractor's right to proceed.

(h) If, before acceptance of the entire work, the Government decides to examine already completed work by removing it or tearing it out, the Contractor, on request, shall promptly furnish all necessary facilities, labor, and material. If the work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray the expenses of the examination and of satisfactory reconstruction. However, if the work is found to meet contract requirements, the Contracting Officer shall make an equitable adjustment for the additional services involved in the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(i) Unless otherwise specified in the contract, the Government shall accept, as promptly as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the Government's rights under any warranty or guarantee.

(End of clause)

52.246-21 WARRANTY OF CONSTRUCTION (MAR 1994)

(a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (i) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

(b) This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

(c) The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Government-owned or controlled real or personal property, when that damage is the result of--

(1) The Contractor's failure to conform to contract requirements; or

(2) Any defect of equipment, material, workmanship, or design furnished.

(d) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.

(e) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

(f) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(g) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall--

(1) Obtain all warranties that would be given in normal commercial practice;

(2) Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and

(3) Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

(h) In the event the Contractor's warranty under paragraph (b) of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

(i) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.

(j) This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

(End of clause)

52.249-4001 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (APR 1991 OCE)
(Ref. FAR 52.249-10)

(a) This provision specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the contract clause entitled DEFAULT (FIXED-PRICE CONSTRUCTION). In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

(b) The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY WORKDAYS BASED ON 5-DAY WORK WEEK											
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10	9	6	4	4	6	8	7	4	4	5	9

Upon acknowledgment of the Notice to Proceed and continuing through-out the contract, the Contractor will record on the daily Contractor Quality Control report the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled workday. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day in each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph (b) above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather workdays, and issue a modification in accordance with the contract clause entitled DEFAULT (FIXED PRICE CONSTRUCTION).

(End of clause)

52.249-5000 BASIS FOR SETTLEMENT OF PROPOSALS - EFARS

Actual costs will be used to determine equipment costs for a settlement proposal submitted on the total cost basis under FAR 49.206-2(b). In evaluating a terminations settlement proposal using the total cost basis, the following principles will be applied to determine allowable equipment costs:

Actual costs for each piece of equipment, or groups of similar serial or series equipment, need not be available in the contractor's accounting records to determine total actual equipment costs. If equipment costs have been allocated to a contract using predetermined rates, those charges will be adjusted to actual costs.

- (3) Recorded job costs adjusted for unallowable expenses will be used to determine equipment operating expenses.
 - (4) Ownership costs (depreciation) will be determined using the contractor's depreciation schedule (subject to the provisions of FAR 31.205-11).
 - (5) License, taxes, storage and insurance costs are normally recovered as an indirect expense and unless the contractor charges these costs directly to contracts, they will be recovered through the indirect expense rate.
- (End of Clause)

COEFFICIENT APPLICATION

COEFFICIENT APPLICATION EXAMPLE

An example of how the coefficients are applied in accordance with the solicitation is presented below:

- 55 Once the elements of work not excluded from the R.S. Means Cost Book are price, use the BARE COSTS TOTAL column for the line items of work performed by the offeror, and the TOTAL INCL O&P column for line items of work performed by sub-contractors. Say Cost Book price is \$100,000.
- 56 The city index adjustment factor for Fayetteville, N.C. of .088 is applied resulting in a sub-total task order price of \$88,000.00.
- 57 Say a contractor's coefficient is 1.100.
- 58 Applying that coefficient to the sub-total of \$88,000 results in a final task order cost including all prime contractor indirect and profit costs of \$96,800.

ATTACHMENT 1 TO SECTION 00800

LIST OF ATTACHMENTS

1. Contract Drawings: See Appendix A
2. Rates of Wages:
3. Formats:
 - Project Sign
 - Erection of Sign Detail
 - Corps of Engineers Logo
 - Accident Prevention Plan (Ref. FAR 52.236-13 and EM 385-1-1)
 - Construction Quality Control Report
 - Small and Disadvantaged Business Subcontracting Plan
 - Weekly Temporary Electrical Inspection
4. Minimum Standard for Temporary Electrical Service (Ref. FAR 52.236-14)
5. Forms:
 - SAS Form 9 - Activity Hazard Analysis
 - SAD Form 1666a-R - Safety Checklist for Crawler, Truck & Wheel Mounted Cranes
 - SAD Form 1666b-R - Safety Checklist for Portal, Tower, and Pillar Cranes
 - SAD Form 1666c-R - Safety Checklist for Rigging
 - SAD Form 1666d-R - Safety Checklist for Motor Vehicles, Trailers and Trucks
 - SAD Form 1666e-R - Safety Checklist for Crawler Tractors and Dozers
 - SAD Form 1666f-R - Safety Checklist for Scrapers, Motor Graders, and Other Mobile Equipment
 - SAD Form 1666g-R - Safety Checklist for Material Hoists
 - SAD Form 1666h-R - Safety Checklist for Earth Drilling Equipment
 - ENG Form 4025 - Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificates of Compliance
 - DA Form 5418-R - Cost Estimate Analysis

DD Form 1354 - Transfer and Acceptance of Military Real Property

Standard Form LLL-A - Disclosure of Lobbying Activities

FB Form 1605 - Directorate of Engineering and Housing Excavation Permits

Landfill Permit Application

Ft. Bragg Asbestos Removal, Transportation, and Disposal

Real Property Inventory

General Decision Number NC020032

General Decision Number **NC020032**

Superseded General Decision No. NC010032

State: North Carolina

Construction Type:

BUILDING

County(ies):

CUMBERLAND

BUILDING CONSTRUCTION PROJECTS (does not include residential construction consisting of single family homes and apartments up to and including 4 stories).

Modification Number Publication Date

0

03/01/2002

COUNTY(ies):

CUMBERLAND

SUNC1027A 10/24/1994

	Rates	Fringes
BRICKLAYERS/BLOCKLAYERS	12.50	
CARPENTERS (Including drywall hanging, acoustical tile installation and batt insulation)	9.08	
CEMENT MASONS/CONCRETE FINISHERS	8.43	
ELECTRICIANS	9.71	
GLAZIERS	8.77	
HVAC MECHANIC (HVAC pipe only)	9.26	
INSULATORS (pipe)	10.42	.63
IRONWORKERS, STRUCTURAL	10.76	
LABORERS:		
Unskilled	6.23	
PAINTERS (Brush)	7.90	.04
PLUMBERS	10.28	
ROOFERS	6.75	
SHEET METAL WORKERS (Including HVAC Duct Work)	9.36	
SOFT FLOOR LAYERS/CARPET LAYERS	12.00	
TRUCK DRIVERS	7.10	

WELDERS - receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(v)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination

- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

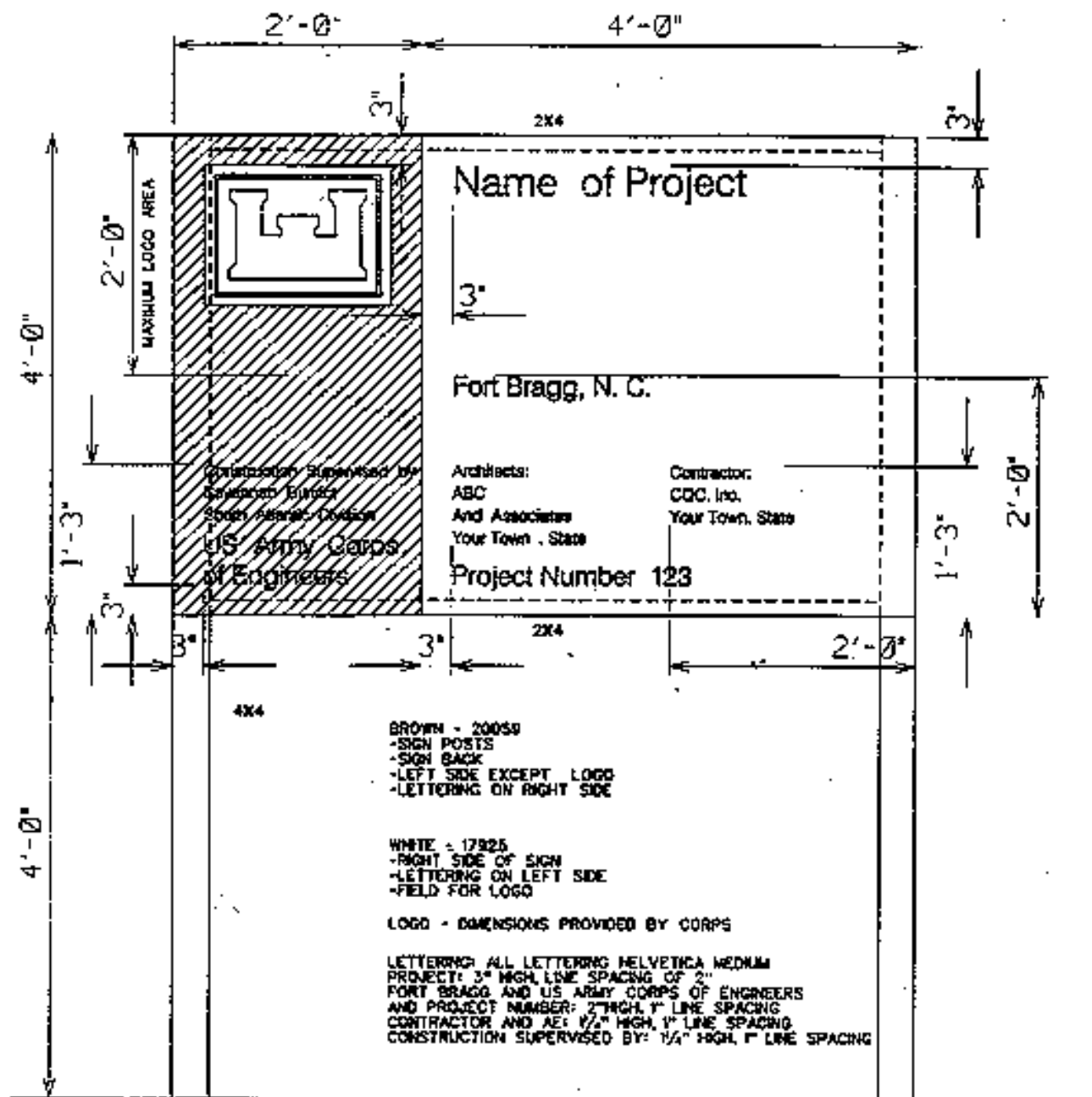
Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

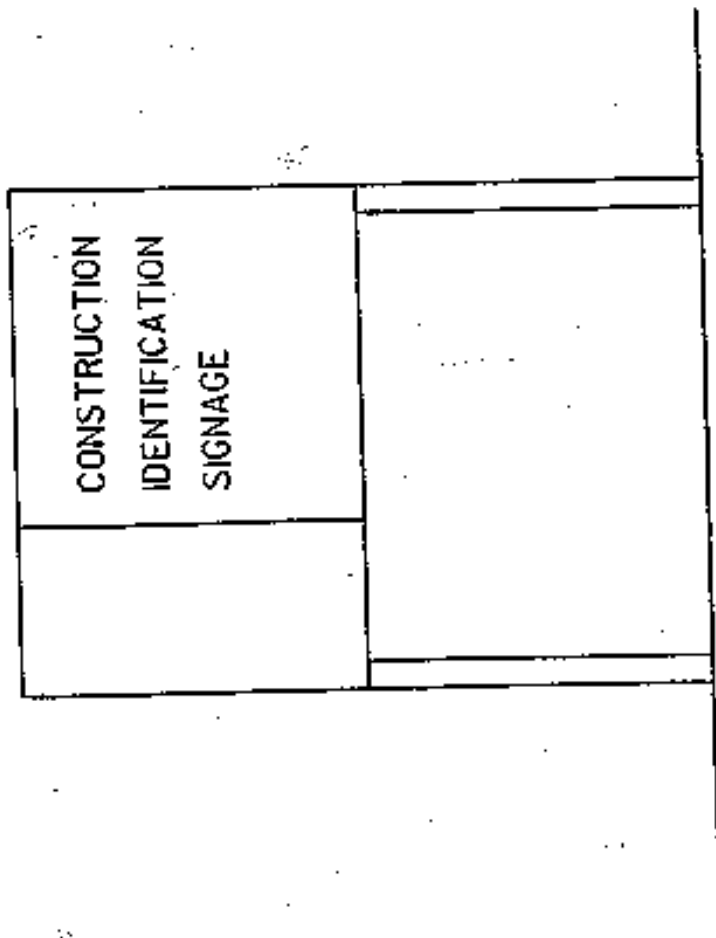
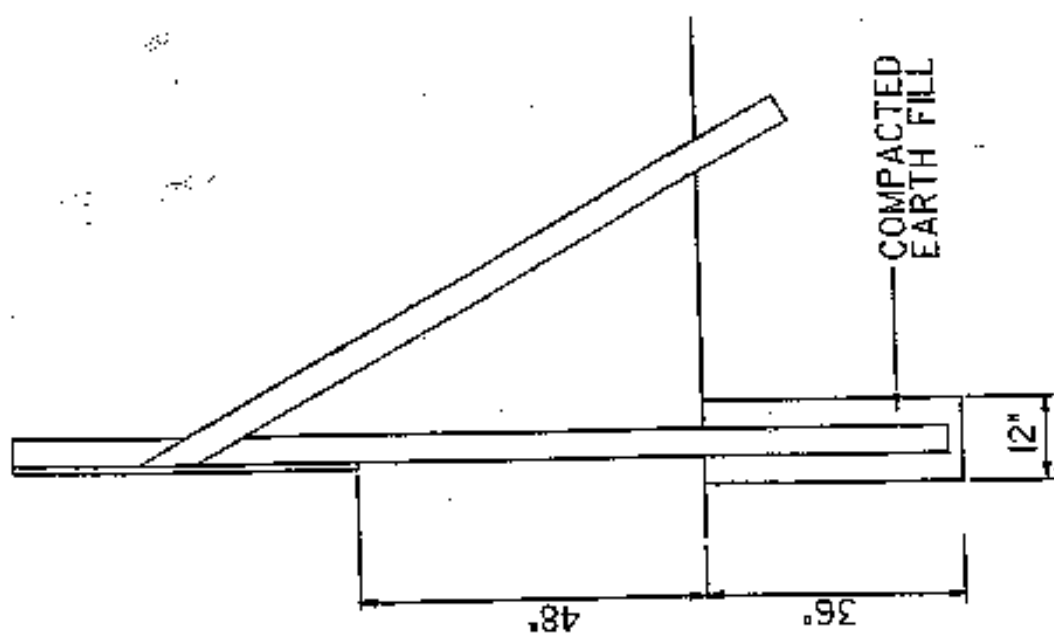
3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

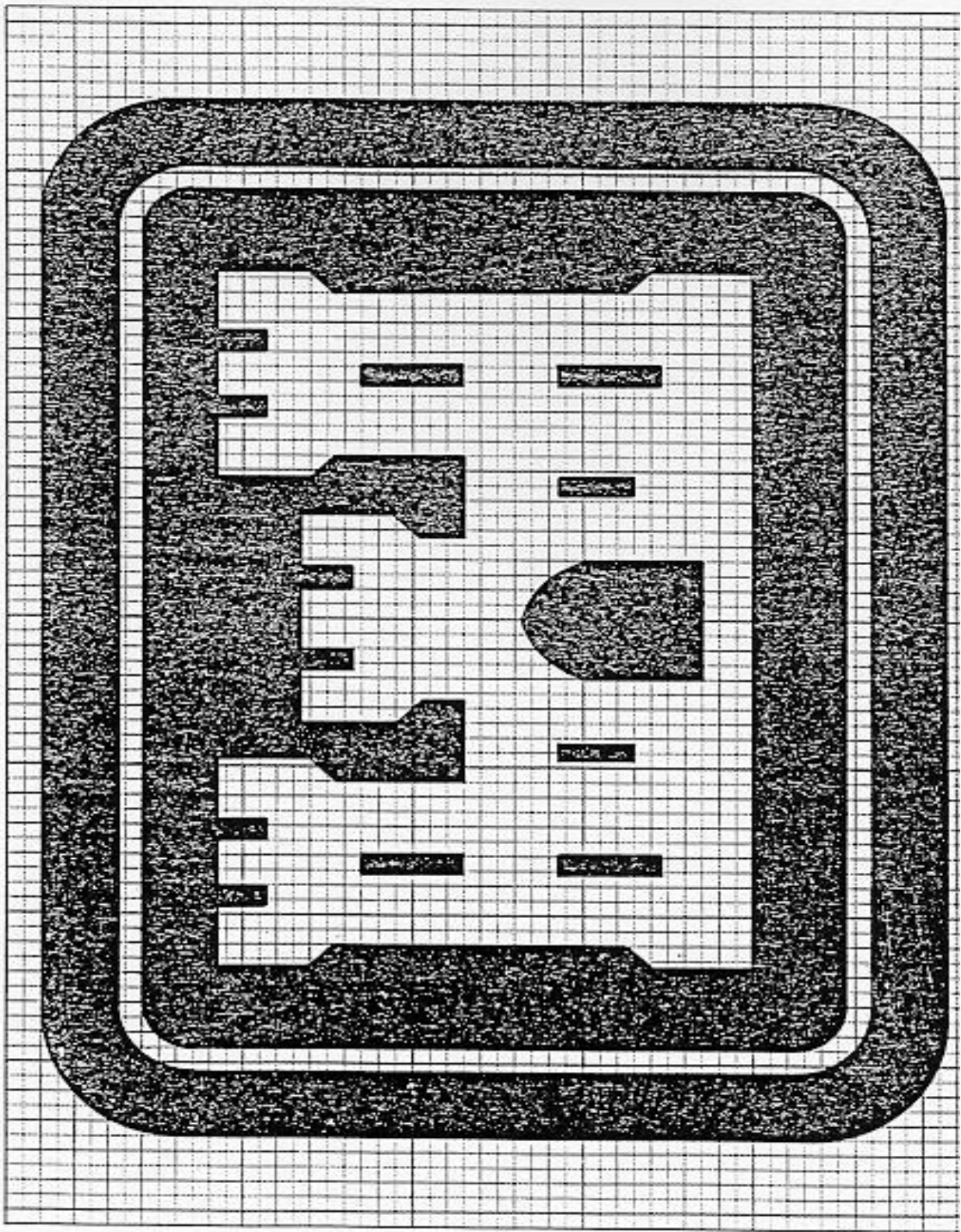
Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.
END OF GENERAL DECISION



PROJECT SIGN FOR SAVANNAH MANAGED DESIGNS





CORPS OF ENGINEERS LOGO
HALF SIZE

FORMAT
(Ref. FAR 52.236-13 and EM 385-1-1 dated 3 Sep 96)
ACCIDENT PREVENTION PLAN

MINIMUM BASIC OUTLINE FOR ACCIDENT PREVENTION PLAN

An accident prevention plan is, in essence, a safety and health policy and program document. The following areas are typically addressed in an accident prevention plan, but a plan shall be job specific and shall also address any unusual or unique aspects of the project or activity for which it is written. The accident prevention plan shall interface with the employer's overall safety and health program. Any portions of the overall safety and health program that are referenced in the accident prevention plan shall be included as appropriate.

1. SIGNATURE SHEET. Title, signature, and phone number of the following:

- a. Plan preparer (corporate safety staff person, QC);
- b. Plan approval, e.g., owner, company president, regional vice president (HTRW activities require approval of a Certified Industrial Hygienist (or qualified Industrial Hygiene personnel for in-house USACE activities; a Certified Safety Professional (or qualified USACE safety personnel for in-house work) may approve the plan for operations involving UST removal where contaminants are known to be petroleum, oils, or lubricants);
- c. Plan concurrence (provide concurrence of other applicable corporate and project personnel (contractor)), e.g., Corporate Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional, project QC. The plan will be developed by qualified personnel (plan preparer) and will be signed by a competent person (plan concurrence) and a representative of the prime contractor's project management team (plan approval).

2. BACKGROUND INFORMATION. List the following:

- a. Contractor;
- b. Contract number;
- c. Project name;
- d. Brief project description, description of work to be performed, and location (map);
- e. Contractor accident experience (provide information such as EMR, OSHA 200 Forms, corporate safety trend analyses);
- f. Listing of phases of work and hazardous activities requiring activity hazards analyses.

3. STATEMENT OF SAFETY AND HEALTH POLICY. (In addition to the corporate policy statement, a copy of the corporate safety program may provide a

significant portion of the information required by the accident prevention plan.)

4. RESPONSIBILITIES AND LINES OF AUTHORITIES.

a. Identification and accountability of personnel responsible for safety - at both corporate and project level (contracts specifically requiring safety or industrial hygiene personnel should include a copy of their resume - the District Safety and Occupational Health Office will review the qualifications for acceptance). For items in EM 385-1-1 which require the use of a competent person or a qualified person, the contractor is to maintain documentation demonstrating the competence or qualification of that individual.

b. Lines of authority

5. SUBCONTRACTORS AND SUPPLIERS. Provide the following:

- a. Identification of subcontractors and suppliers (if known);
- b. Means for controlling and coordinating subcontractors and suppliers;
- c. Safety responsibilities of subcontractors and suppliers.

6. TRAINING.

a. List subjects to be discussed with employees in safety indoctrination.

b. List mandatory training and certifications which are applicable to this project (e. g., explosive actuated tools, confined space entry, crane operator, diver, vehicle operator, HAZWOPER training and certification, personal protective equipment) and any requirements for periodic retraining/recertification.

c. Identify requirements for emergency response training.

d. Outline requirements (who attends, when given, who will conduct etc.) for supervisory and employee safety meetings.

e. Identify location at the project site where the records will be maintained.

7. SAFETY AND HEALTH INSPECTIONS. Provide details on:

a. Who will conduct safety inspections (e.g., project manager, safety professional, QC, supervisors, employees, etc.), when inspections will be conducted, how the inspections will be recorded, deficiency tracking system, follow-up procedures, etc;

b. Any external inspections/certifications which may be required (e.g., Coast Guard).

8. SAFETY AND HEALTH EXPECTATIONS, INCENTIVE PROGRAMS, AND COMPLIANCE.

a. The company's written safety program goals, objectives, and accident experience goals for this contract should be provided.

b. A brief description of the company's safety incentive programs (if any) should be provided.

c. Policies and procedures regarding noncompliance with safety requirements (to include disciplinary actions for violation of safety requirements) should be identified.

d. Provide written company procedures for holding managers and supervisors accountable for safety.

9. ACCIDENT REPORTING. The contractor shall identify who shall complete the following, how, and when:

- a. Exposure data (man-hours worked);
- b. Accident investigations, reports and logs;
- c. Immediate notification of major accidents.

10. MEDICAL SUPPORT. Outline on-site medical support and off-site medical arrangements.

11. PERSONAL PROTECTIVE EQUIPMENT. Outline procedures (who, when, how) for conducting hazard assessments and written certifications for use of personal protective equipment.

12. PLANS (PROGRAMS, PROCEDURES) REQUIRED BY THE SAFETY MANUAL (as applicable).

- a. Hazard communication program (01.B.04);
- b. Emergency response plans:
 - procedures and tests (01.E.01)
 - spill plans (01.E.01, 06.A.02)
 - fire fighting plan (01.E.01, 19.A.04)
 - posting of emergency telephone numbers (01.E.04)
 - wildfire prevention plan (09.K.01)
 - man overboard/abandon ship (19.A.04)
- c. Layout plans (04.A.01);
- d. Respiratory protection plan (05.E.01);
- e. Health hazard control program (06.A.02);
- f. Lead abatement plan (06.B.05 & specifications);
- g. Asbestos abatement plan (06.B.05 & specifications);
- h. Abrasive blasting (06.H.01);
- i. Confined space (06.1);
- j. Hazardous energy control plan (12.A.07);
- k. Critical lift procedures (16.C.17);

- 1. Contingency plan for severe weather (19.A.03);
- m. Access and haul road plan (22.1.10);
- n. Demolition plan (engineering and asbestos surveys) (23.A.01);
- o. Emergency rescue (tunneling) (26.A.05);
- p. Underground construction fire prevention and protection plan (26.D.01);
- q. Compressed air plan (26.1.01);
- r. Formwork and shoring erection and removal plans (27.B.02);
- s. Lift slab plans (27.D.01);
- t. SHP and SSHP (for HTRW work an SSHP must be submitted and shall contain all information required by the accident prevention plan - two documents are not required (28.B.01);
- u. Blasting plan (29.A.01);
- v. Diving plan (30.A.13);
- w. Plan for prevention of alcohol and drug abuse (Defense Federal Acquisition Regulation Supplement Subpart 252.223-7004, Drug-Free Work Force).

13. The Contractor shall provide information on how they will meet the requirements of major sections of EM 385-1-1 in the accident prevention plan. Particular attention shall be paid to excavations, scaffolding, medical and first aid requirements, sanitation, personal protective equipment, fire prevention, machinery and mechanized equipment, electrical safety, public safety requirements, and chemical, physical agent, and biological occupational exposure prevention requirements. Detailed site-specific hazards and controls shall be provided in the activity hazard analysis for each phase of the operation. Site-specific hazards are those hazards which would be reasonably be anticipated to occur on the construction site of concern and will be identified through analysis of the activities to be performed. The controls are measures which will be implemented by the contractor to eliminate or reduce each hazard to an acceptable level.

F O R M A T

CONTRACTOR'S NAME
(Address)

CONSTRUCTION QUALITY CONTROL REPORT

Date: _____ Report No. _____

Contract No.: _____

Description and Location of Work: _____

WEATHER: (Clear)(P. Cloudy)(Cloudy); Temperature: ____Min, ____Max;
Rainfall ____Inches

Contractor/Subcontractors and Area of Responsibility

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____
- h. _____

1. Work Performed Today:

(Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in table above.)

2. Results of Control Activities:

(Indicate whether: P-Preparatory, I-Initial, or F-Followup and include satisfactory work completed or deficiencies with action to be taken.)

3. Test Required by Plans and/or Specifications Performed and Results of Tests:

4. Monitoring of Materials and Equipment:

5. Offsite Surveillance Activities:

6. Job Safety:

(Daily comment required.)

7. Remarks:

- a. (Cover any conflicts in plans, specifications or instructions.)
- b. (Action taken in review of submittal.)
- c. (Verbal instructions received.)

Inspector

CONTRACTOR'S VERIFICATION:

The above report is complete and correct and all material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Contractor's Approved
Authorized Representative

SAMPLE

SMALL AND DISADVANTAGED BUSINESS SUBCONTRACTING PLAN

BETTER BUILDERS, INC.

DATE: February 11, 2003

SOLICITATION NO. DACA21-0X-X-XXXX

TITLE: Barracks Complex, Fort Swampy, Georgia

Type of Work: Design and Construction

In accordance with applicable contract clauses of the solicitation noted above, Better Builders, Inc. submits the following Small Business Subcontracting Plan (includes small, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns).

It is company policy to follow all public laws including P.L. 99-661, Section 1207, P.L. 100-180, Section 806, P.L. 105-135 and P.L. 106-50. We have informed all purchasers to follow these laws in hiring subcontractors and buying materials.

1. The following goals (expressed in terms of percentages of the total dollars available for subcontract/purchase order award) would be applicable to a contract awarded under the cited solicitation. You must also provide the dollar amounts for each of the goals listed below.
 - a. Total Proposed Contract Amount: \$26,961,000
 - b. Total amount available for Subcontract award: \$18,300,000
 - c. Large Business: \$7,832,400 – 42.8%
 - d. Total amount to be subcontracted to all small business: \$10,467,600 - 57.2%
 - e. Small Disadvantaged Business: \$1,628,700 – 8.9%
 - f. Women-Owned Small Business: \$1,482,300 – 8.1%
 - g. Service-Disabled Veteran-Owned Small Business: \$549,000 - 3%
 - h. HUBZone Small Business: \$549,000 – 3%

- i. There are no options in this solicitation. *(NOTE: If there are options in the solicitation you must provide the same information as listed in paragraph 1 a-h for each option year/period.)*
- j. Indirect and overhead costs have not been included in the goals specified in this section for amounts available for subcontract/purchase order award.
- k. Consideration was given to HCBU/MI's but no opportunities were found to be included in the small disadvantaged business goals.

NOTE: While Savannah District does not have a specific goal for subcontracting with Veteran-Owned small business, it must be addressed in any subcontracting plan. However, FAR 52.219-9 requires a goal in your subcontracting plan for Veteran-Owned small business concerns.

2. The following principal products and/or services will be subcontracted under this contract, and the distribution among all small business concerns are as follows:

Large Business - Earthwork

Small Business - Windows and Storm Doors, Recreation, Site Utilities Plumbing

Veteran Owned Small Business – Materials, Equipment

Service Disabled Veteran Owned Small Business – Asphalt, Electrical, Doors

HUBZone Small Business - Window Treatment, HVAC, Concrete

Small Disadvantaged Business - Vinyl Siding, Insulation, Gutters

Women Owned Small Business – Carpentry, Ceramic Tile, Fencing

NOTE: Company names should be provided for each product and/or service listed.

The following method was used in developing our subcontracting goals: (1) all areas of potential subcontract work were determined to be available for subcontract award to all types of small business concerns, and (2) will be actively recruited for participation through the many sources described hereinafter.

3. The following individual will administer this Subcontract Plan on behalf of Better Builders, Inc.:

Name: Freddie Better

Title: Executive Vice President

Address and Telephone Number: 4845 Tonka Drive
Fair Haven, CT 27413
800-621-4845

The individual's specific duties with regard to the conduct of our firm's Subcontracting Plan will include, but will not be limited to the following:

a. Developing and maintaining bidders lists of all types of small business concerns using sources such as the Pronet System developed by the Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, Local Minority Business Development Centers and Minority Contractor Associations, and the General Business Services Center in the project's Standard Metropolitan Statistical Area.

b. Assuring the inclusion of all types of small business concerns in all solicitations for products or services which they are capable of providing; and ensuring that all solicitations are structured to permit the maximum possible participation by all types of small business concerns.

c. Establishing and maintaining records of all solicitations and subcontract awards to all types of small business concerns to ensure that the members of the firm who review bidders proposals document their reasons for selecting or not selecting a bid.

d. Preparing and submitting the Subcontracting Report for Individual Contracts (SF 294) and the Summary Subcontract Report (SF 295) in accordance with the instructions provided on the forms, and coordinating and preparing for all compliance reviews by Federal agencies.

e. Conducting or arranging for all other activities necessary to further the intent and attainment of goals of the Plan to include motivational training of the firm's purchasing personnel attendance at workshop, seminars and trade fairs conducted by or on behalf of all types of small business concerns, and general cooperation with members of these concerns or their representatives.

4. The following steps will be taken to ensure that all types of small business concerns receive notice and have an equitable opportunity to compete for intended awards of subcontracts and/or purchase orders for the products and/or services described in paragraph 2 above:

a. Sources will be requested through the SBA's ProNet system, business development organizations, small business trade associations and at small business procurement conferences; sources will be contacted and bidding materials will be provided to all responding parties with interest.

b. Internally, motivational training will be conducted to guide and encourage purchasing personnel; source lists and guides to all types of small business concerns will be maintained and utilized by purchasing personnel while soliciting subcontracts and purchase orders; activities will be monitored to ensure sufficient time is allowed for interested bidders to prepare their bids and to evaluate continuing compliance with this Subcontracting Plan.

5. Better Builders, Inc. agrees that the clause entitled "Utilization of Small Business Concerns" will be included in all subcontracts which offer further subcontracting opportunities. All subcontractors, except small business concerns, who receive subcontracts in excess of \$500,000 (\$1,000,000 in the case of construction) will be required to adopt and comply with a subcontracting plan similar to this one. Such plans will be reviewed to assure that all minimum requirements of an acceptable subcontracting plan have been satisfied.

The acceptability of goals shall be determined on a case-by-case basis depending on the supplies/services involved, the availability of all potential small business and prior experience. Once approved and implemented, plans will be monitored through the submission of periodic reports or, as time and availability of funds permit, periodic visits to subcontractor's facilities to review applicable records and subcontracting program progress.

6. Better Builders, Inc. agrees to submit such periodic reports and cooperate in any studies or surveys as may be required by the Contracting agency or the Small Business Administration in order to determine the extent of compliance by the offeror with the subcontracting plan and with the clause entitled "Utilization of Small Business Concerns" contained in the solicitation.

7. Better Builders, Inc. agrees to maintain at least the following types of records to document compliance with this Subcontracting Plan:

a. The names of all organizations, agencies, and associations contacted for all small business sources, along with records of attendance at conferences, seminars and trade fairs where additional sources were developed.

b. Source lists, guides, and other data identifying all types of small business concerns

c. Records on all subcontract solicitations, on a contract-by-contract basis, indicating (1) whether all types of small business concerns were solicited, and if not, why not; and (2) the reasons for the failure of all solicited small businesses to receive a subcontract award.

d. Records of all subcontract award data, to include subcontractor's name and address, to be kept on a contract-by-contract basis.

e. Minutes of internal motivational and training meetings held for the guidance and encouragement of purchasing personnel, and records of all monitoring activities performed for compliance evaluation.

f. Copies of SF 294 and SF 295 showing date and place of filing and copies of all other reports or results of reviews conducted by the contracting agency or other interested agencies of the Federal government to monitor our compliance with this Subcontracting Plan.

In closing Better Builders, Inc. states that it will be the policy of Better Builders, Inc. to afford every practicable opportunity to all types of small business concerns to participate in construction contracts awarded to Better Builders, Inc. by the Federal Government to ensure that equitable opportunity is provided to all types of small business concerns to compete for award of subcontracts and purchase orders, and to diligently pursue the achievement of our goals by participation of all types of small business concerns in the dollars available for subcontract/purchase order award under the solicitation.

BY _____

DATE _____

Signature

Title, and Company Name

Contract Specialist

DATE _____

Approval Recommended

SADBU

DATE _____

Approve/Disapprove

Contracting Officer

DATE _____

Approve/Disapprove

Procurement Center Representative
Small Business Administration

DATE _____

WEEKLY TEMPORARY ELECTRICAL INSPECTION

Week ending _____

Contract No. _____

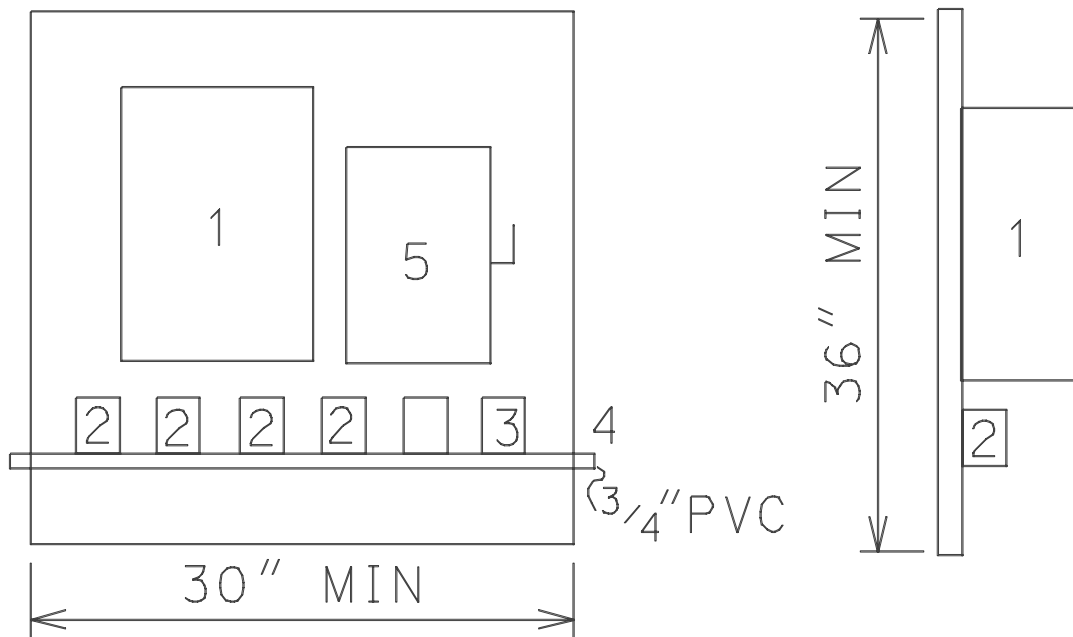
Contract Description _____

The following items were inspected in accordance with requirements in National Electrical Code and Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1.

1. Wire (size, type, condition).
2. Systems and devices (polarity, continuity of ground, resistance to ground).
3. Resistance of ground rods (25 OHMS) measured and recorded.
4. Check GFI for 15/20 amp 120 volt circuits.
5. Plugs and receptacles (type, NEMA rating).
6. Circuit breakers and disconnect (size, type, weatherproof).
7. Extension cords (type, UL listed, insulation condition, splices, location).
8. Open wiring on insulators, nonmetallic sheathed cable, outside clearance (600 volts or less), Festoon lighting (as applicable).

Signature Electrician/Electrical Engineer

MINIMUM STANDARD FOR TEMPORARY ELECTRICAL SERVICE



(DIMENSIONS ARE APPROXIMATE)

A. The backboard for temporary service shall consist of not less than 1/2 inch plywood of exterior grade.

B. Numbers above correspond to the item below:

Item 1 - NEMA 3R circuit breaker type panelboard. This panelboard shall consist of 1 two-pole 60 amp main circuit breaker, 4* one pole 20 AMP branch circuit breakers, and 1* two pole 20 AMP branch circuit breaker. Breakers shall meet Federal Specifications Standards for Class 1A breakers and shall be plug-in type. (*Number of breakers to be adjusted to suit the job requirements.)

Item 2 - Duplex grounding type convenience outlets in standard utility type outlet boxes with covers, meeting the NEC and NEMA requirements for wet locations. Connections to the branch circuit breakers shall be grounded by two conductors #12 NMC cable.

Item 3 - (Optional) A single three-conductor grounding type outlet rated for 250 volt service meeting the NEC and NEMA requirements for wet locations. Connections from this outlet to the two pole breaker shall be by two conductor grounded type NMC cable.

Item 4 - 3/4 inch PVC. This shall be used to support extension cords.

Item 5 - NEMA 3R service disconnect safety switch - 60 amp minimum.

C. The panelboard shall be grounded by #6 copper wire connected to a 3/4 inch by 10-foot long ground rod.

D. Service to the panel shall consist of three copper conductor #6 minimum service entrance cable. This cable may enter the top or side of the panelboard.

E. Periodic inspections of systems and devices will be made by the Contractor at intervals not to exceed 1 week, and a report will be submitted indicating the results.

F. All receptacle outlets that provide temporary electrical power during construction, remodeling, maintenance, repair, or demolition shall have ground-fault circuit-interrupter (GFCI) protection for personnel. GFCI protection shall be provided on all circuits serving portable electric hand tools or semi-portable electric power tools (such as block/brick saws, table saws, air compressors, welding machines, and drill presses). See EM 385-1-1 for exceptions.

G. Per EM 385-1-1 all temporary power distribution systems shall be submitted to the field office before installation.

ACTIVITY HAZARD ANALYSIS

1. Phase of Construction		
2. Location	3. Contract No.	4. Project
5. Prime Contractor	6. Date of Preparatory	7. Estimated Start Date
Potential Safety Hazard	Procedure to Control Hazard	
<div></div>		
8. Contractor's Representative (signature)	9.	

SAFETY CHECKLIST FOR CRAWLER, TRUCK & WHEEL MOUNTED CRANES

Contract # and title:			
Equipment name & number: owned or leased?			
Contractor:	Subcontractor:		
Contract Inspector:	Date inspected:		
	Yes	No	N/A
1. Unless the manufacture has specified an on-rubber rating, outriggers will be fully extended and down? (16.D.10)			
2. Are lattice boom cranes equipped with a boom angle indicator, load indicating device, or a load moment indicator? (16.D.01)			
3. Are lattice boom and hydraulic cranes equipped with a means for the operator to visually determine levelness? (16.D.02)			
4. Are lattice boom and hydraulic cranes, except articulating booms cranes, equipped with drum rotation indicators located for use for the operator? (16.D.03)			
5. Are lattice boom and hydraulic mobile cranes equipped with a boom angle or radius indicator within the operator's view? (16.D.04)			
6. Are lattice boom cranes, with exception of duty cycle cranes, equipped with an anti-two blocking device? (16.D.05)			
7. When duty cycle machines are required to make a non-duty lift, is the crane equipped with an international orange warning device and is a signal person present? (16.D 05)			
8. Are the following with the crane at all times: (16.C.02) <ul style="list-style-type: none"> a. the manufacturer's operating manual? b. the load rating chart? c. the crane's log book documenting use, maintenance, inspections and tests? d. operating manual for crane operator aids used on the crane. 			

	Yes	No	N/A
9. Are the following on the project site: a. completed periodic inspection report prior to initial work? (16.C.12) b. pre-operational checklist used for daily inspection? (16.C.12) c. written reports of the operational performance test? (16.C.13) d. written reports of the load performance test? (16.C.13)			
10. Are all operators physically qualified to perform work? (16.C.05)			
11. Are all operators qualified by written and practical exam or by appropriate licensing agency for the type crane they are to operate? (16.C.05)			
12. Is the crane designed and constructed IAW the standards listed in Table 16-1? (16.C.06)			
13. Is a hazard analysis for set-up and set-down available? (16.C.08)			
14. Are accessible areas within the swing radius of the rear of the crane barricaded? (16.C.09)			
15. Are there at least 3 wraps of cable on the drum? (16.C.10)			
16. Are the hoisting ropes installed IAW the manufacturer's recommendations? (16.C.10)			
17. Are critical lift plans available? (16.C.18)			
18. Are minimum clearance distance for high voltage lines posted at the operator's position? (11.E.04)			
19. Do older lattice boom cranes with anti-two block warning devices in lieu of anti-two block prevention devices have a written exemption? (16.D.05)			
20. Is the slow moving emblem used on all vehicles which by design move at 25 MPH or less on public roads? (08.A.04)			
21. Are all vehicles which will be parked or moving slower than normal traffic on haul roads equipped with a yellow flashing light or flasher visible from all directions? (16.A.13)			

	Yes	No	N/A
22. Is all equipment to be operated on public roads provided with: (16A.07) a. headlights? b. brake lights? c. taillights? d. back-up lights? e. front and rear turn signals?			
23. Are seat and seat belts provided for the operator and each rider on equipment? (16.A.07 and 16.B.08)			
24. Is all equipment with windshields equipped with powered wipers and defogging or defrosting devices? (16.A.07)			
25. Is the glass in the windshield or other windows clear and unbroken to provide adequate protection and visibility for the operator? (16.A.07, 16.B.10)			
26. Is all equipment equipped with adequate service brake system and emergency brake system? (16.A.18)			
27. Are areas on equipment where employees walk or climb equipped with platforms, footwalks, steps, handholds, guardrails, toeboards and non-slip surfaces? (16.B.03)			
28. Is all self propelled equipment equipped with automatic, audible, reverse signal alarms? (16.B.01)			
29. Is there a record of manufacturer's approval of any modification of equipment which affects its capacity or safe operation? (16.A.18)			
30. Are truck and crawler cranes attached to a barge or pontoon by a slack tiedown system? (16.F.06)			
31. Have the following conditions been met for land cranes mounted on barges or pontoons: (16.F.04) a. Have load ratings been modified to reflect the increased loading from list, trim, wave, and wind action? b. Are all deck surfaces above the water? c. Is the entire bottom area of the barge or pontoon submerged? d. Are tie downs available? e. Are cranes blocked and secured?			
32. Are all belts, gears, shafts, spindles, drums, flywheels, or other rotating parts of equipment guarded where is a potential for exposure to workers? (16.B.03)			

	Yes	No	N/A
33. Is the area where the crane is to work level, firm and secured? (16.A.10)			
34. Is a dry chemical or carbon dioxide fire extinguisher rated at least 5-B:C on the crane? (16.A.26)			
35. Are trucks, for truck mounted cranes, equipped with a working reverse signal alarm? (16.B.01)			
36. Is a signal person provided where there is danger from swinging loads, buckets, booms, etc.? (16.B.13)			
37. Is there adequate clearance from overhead structures and electrical sources for the crane to be operated safely? (16.C.09)			
38. Is there adequate lighting for night operations? (16.C.19)			
39. Has the the boom stop test on cable-supported booms been performed? (16.D.06)			
40. Is the boom disenaging device functioning as required? (16.D.06)			
41. Has all rigging and wire rope been inspected? (Section 15)			
Remarks:(Enter actions taken for all "no" answers.)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR PORTAL, TOWER, AND PILLAR CRANES			
Contract # and Title:			
Equipment name & number: owned or leased?			
Contractor:		Subcontractor:	
Contract Inspector:		Date Inspected:	
	Yes	No	N/A
1. Are the following available: (16.E.02)			
a. written erection instructions?			
b. listing of the weight of each component?			
c. an activity hazard analysis for the erection?			
d. does the activity hazard analysis contain			
(1.) location of crane and adjacent			
structures?			
(2.) foundation design and construction			
requirements?			
(3.) clearance and bracing requirements?			
2. Is there a boom angle indicator within the			
operator's view? (16.E.04)			
3. Are luffing jib cranes equipped with: (16.E.05)			
a. shock absorbing jib stops?			
b. jib hoist limit switch?			
c. jib angle indicator visible to operator?			
4. If used, do rail clamps have slack between the			
point of attachment to the rail and the end fastened			
to the crane? (16E.06)			
5. Are the following with the crane at all times:			
(16.C.02)			
a. the manufacturer's operating manual?			
b. the load rating chart?			
c. the crane's log book documenting use,			
maintenance, inspections and tests?			
d. the operating manual for crane operational			
aids used on the crane?			

	Yes	No	N/A
6. Are the following on the project site: a. completed periodic inspection report prior to initial work? (16.C.12) b. pre-operational checklist used for daily inspections? (16.C.12) c. written reports of the operational performance tests? (16.C.13) d. written reports of the load performance tests? (16.C.13)			
7. Is every crane operator certified by a physician to be physically qualified to perform work? (16.C.05)			
8. Are all operators qualified by written and practical exam or by appropriate licensing agency for the type crane they are to operate? (16.C.05)			
9. Is the crane designed and constructed IAW the standards listed in Table 16-1? (16.C.05)			
10. Is a hazard analysis for set-up and set-down available? (16.C.08)			
11. Are there at least 3 wraps of cable on the drum? (16.C.10)			
12. Are the hoisting ropes installed IAW the manufacturer's recommendations? (16.C.10)			
13. Is there a record of manufacturer's approval of any modification of equipment which affects its capacity or safe operation? (16.A.07)			
5. Remarks: (Enter actions taken)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR RIGGING			
Contract # and title:			
Equipment name & number: owned or leased?			
Contractor		Subcontractor:	
Contractor inspector:		Date inspected:	
	Yes	No	N/A
1. Has all defective rigging been removed? (15.A.01)			
2. Is rigging stored properly? (15.A.01)			
3. Are running lines within 6.5' of the ground or working level guarded? (15.A.03)			
4. Are all eye splices made in an approved manner with rope thimbles? (sling eyes excepted) (15.A.04)			
5. Are positive latching devices used to secure loads? (15.A.05)			
6. Are all custom lifting accessories marked to indicate their safe working loads? (15A.07)			
7. Are all custom designed lifting accessories proof-tested to 125% of their rated load? (15.A.07)			
8. Are the following conditions met for wire rope: (15.B.01-09) a. Are they free of rust or broken wires? b. Are defective ropes cut up or marked as unusable? c. Do rope clips attached with U-bolts have the U-bolts on the dead end or short end of the rope? d. Are protruding ends of strands in splices on slings and bridles covered or blunted? e. Except for eye splices in the end of wires and for all endless wire rope slings, are all wire ropes used in hoisting, lowering, or pulling loads one continuous piece, free of knots or splices?			

<p>f. Do all eye splices have at least 5 full tucks?</p> <p>g. If used, are wedge sockets fastening attached without attached the dead end of the wire rope to the live rope?</p> <p>h. Are they free of eyes or splices formed by wire rope clips or knots?</p>	Yes	No	N/A
<p>9. Are the following conditions met for chain? (15.C.01-04)</p> <p>a. Are all chains alloyed?</p> <p>b. Do all coupling links or other attachments have rated capacities at least equal to that of the chain.</p> <p>c. Are makeshift fasteners restricted from use?</p>			
<p>10. Are the following conditions met for fiber rope: (15.D.01-07)</p> <p>a. Are all ropes protected from freezing, excessive heat or corrosive materials?</p> <p>b. Are all ropes protected from abrasion?</p> <p>c. Are splices made IAW manufacture's recommendations?</p> <p>d. Do all eye splices in manila rope contain at least 3 full tucks and do all short splices contain at least 6 full tucks (3 on each side of the centerline of the splice)?</p> <p>e. Do all splices in layed synthetic fiber rope contain at least 4 full tucks and do short splices contain at least 8 full tucks (4 on each side of the centerline of the splice)?</p> <p>f. Do the tails of fiber rope splices extend at least 6 rope diameters (for rope 1" diameter or greater) past the last full tuck?</p> <p>g. Are all eye splices large enough to provide an included angle of not greater than 60° at the splice when the eye is placed over the load or support?</p>			
<p>11. Are the following conditions met for all slings: (15.E.01-06)</p> <p>a. Is protection provided between the sling and sharp surfaces?</p> <p>b. Do all rope slings have minimum clear length of 40 times the diameter of component ropes between each end fitting or eye splice?</p> <p>c. Do all braided slings have a minimum clear length of 40 times the diameter of component ropes between each end fitting or eye splice?</p>			

d. Do all welded alloy steel chain slings have affixed permanent identification stating size, grade, rated capacity and manufacturer?	Yes	No	N/A
e. Is each synthetic web sling marked or coded to identify its manufacturer, rated capacities for each type hitch and the type material?			
12. Are drums, sheaves, and pulley smooth and free of surface defects? (15.F.01)			
13. Is the ratio of the diameter of the rigging and the drum, block sheave or pulley thread diameter such that the rigging will adjust without excessive wear, deformation, or damage? (15F.02)			
14. Have all damaged drums, sheaves and pulleys been removed from service? (15.F.04)			
15. Are all connections, fittings, fastenings, and attachments of good quality, proper size and strength, and installed IAW manufacturer's recommendations? (15.F.05)			
16. Are all shackles and hooks sized properly? (15.F.06 & .07)			
17. Are hoisting hooks rated at 10 tons or greater provided with safe handling means? (15.F.07)			
18. Do all drums have sufficient rope capacity? (15.F.08)			
19. Is the drum end of the rope anchored by a clamp securely attached to the drum in a manner approved by the manufacturer? (15.F.08)			
20. Do grooved drums have the correct groove pitch for the diameter of the rope and is the groove depth correct? (15.F.08)			
21. Do the flanges on grooved drums project beyond the last layer of rope at a distance of either 2" or twice the diameter of the rope, whichever is greater? (15.F.08)			
22. Do the flanges on ungrooved drums project beyond the last layer of rope a distance of either 2.5" or twice the diameter of the rope, which ever is greater.			

23. Are the sheaves compatible with the size of rope used and as specified by the manufacture? (15F.09)	Yes	No	N/A
24. Are sheaves properly aligned, lubricated, and in good condition? (15.F.09)			
25. When rope is subject to riding or jumping off a sheave, are sheaves equipped with cablekeepers? (15.F.09)			
26. Are eye bolts loaded in the plane of the eye and at angles less than 45° to the horizontal? (15.F.10)			
27. Remarks: (Enter actions taken for "no" answers.)			
Contractor inspector signature			
Contractor QC/safety/project manager signature			

SAFETY CHECKLIST FOR MOTOR VEHICLES , TRAILERS AND TRUCKS

Contract # and title:
owned or leased?

Equipment name & number:

Contractor:

Subcontractor:

Contractor inspector:

Date inspected:

	Yes	No	N/A
1. Are records of safety inspections of all vehicles available? (18.A.02)			
2. Are all vehicles to be operated between sunset and sunrise equipped with: (18.A.04) a. 2 headlights? b. taillights and brake lights? c. front and back turn signals? d. 3 emergency flares, reflective markers, or equivalent portable warning devices?			
3. Are vehicles, except trailers or semi-trailers having a gross weight of 5000 lbs or less, equipped with service brakes and manually operated parking brakes? (18.A.05)			
4. Are service brakes on trailers and semitrailers controlled from the driver's seat of the prime mover? (18A.06)			
5. Does the vehicle have: (18.A.06) a. a speedometer? b. a fuel gage? c. an audible warning device (horn)? d. a windshield & adequate windshield wiper? e. an operable defroster and defogging device? f. an adequate rearview mirror? g. a cab, cab shield, and other protection to protect the driver from the elements and falling or shifting materials? h. non-slip surfaces on steps? I. a power-operated starting device?			

	Yes	No	N/A
6. Is all the glass safety glass and is all broken or cracked glass replace? (18.A.07)			
7. Do trailers meet the following: (18A.08) a. Are all towing devices adequate for the weight drawn? b. Are all towing devices properly mounted? c. Are locking devices or a double safety system provided on every 5th wheel mechanism and tow bar arrangement to prevent accidental separation? d. Are trailers coupled with safety chains or cables to the towing vehicle? e. Are trailers equipped with the power brakes equipped with a break-away device which will lock-up the brakes in the event the trailer separates from the towing vehicle?			
8. Are all dump trucks:(18.A.10) a. equipped with a holding device to prevent accidental lowering of the body? b. equipped with a hoist lever secured to prevent accidental starting or tipping? c. equipped with means to determine (from the operator's position) if the dump box is lowered? d. equipped with trip handles for tailgates that allow the operator to be clear?			
9. Are all buses, trucks and combination of vehicles with a carrying capacity of 1.5 tons or more, to be operated on public roads equipped with: (18.A.11) a. 3 reflective markers? b. 2 wheel chocks for each vehicle? c. at least one 2A:10B:C fire extinguisher? d. at least two properly rated fire extinguishers (for vehicles carrying flammable cargo)? e. a red flag not less than 1 foot square.			
10. Is vehicle exhaust controlled so as not to present a hazard to personnel? (18.A.13)			
11. Are all rubber tired motor vehicles equipped with fenders or with mud flaps if the vehicle is not designed for fenders? (18.A.14)			

	Yes	No	N/A
12. Are all vehicles, except buses, equipped with seat belts? (18.B.02)			
13. Does all self-propelled construction and industrial equipment have a working reverse signal alarm? (16.B.01)			
14. Are all hot surfaces of equipment, including exhaust pipes or other lines, guarded or insulated to prevent injury or fire? (16.B.03)			
15. If an off the road vehicle, is it equipped with rollover protective structures? (16.B.12)			
16. Remarks: (Enter actions taken for "no" answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR CRAWLER TRACTORS AND DOZERS

Contract # and title:			
Equipment name & number: owned or leased?			
Contractor:		Subcontractor:	
Contractor inspector:		Date inspected:	
	Yes	No	N/A
1. Are initial and daily/shift inspection records available? (16.A.01& .02)			
2. Are only qualified operators assigned to operate mechanized equipment? (16.A.04)			
3. Are sufficient lights provided for night operations? (16.A.11)			
4. Is the unit shut down before refueling? (16.A.14)			
5. Does the unit have as a minimum a 5-B:C fire extinguisher? (16.A.26)			
6. Is there an effective, working reverse alarm? (16.B.01)			
7. Are moving parts, shafts, sprockets, belts, etc., guarded? (16.B.03 ,07, and 13)			
8. Is protections against hot surfaces, exhausts, etc., provided? (16.B.03 and .13)			
9. Are fuel tanks located in a manner to prevent spills or overflows from running onto engine exhaust or electrical equipment?			

10. Are exhaust discharges directed so they do not endanger person or obstruct operator vision?(16.B.05)	Yes	No	N/A
11. Are seat belts provided? (16B.08)			
12. Is protection (grills, canopies, screens) provided to shield operator from falling or flying objects? (16.B.10 and .11)			
13. Is roll over protection provided? (16.B.12)			
14. Remarks: (Enter actions taken for "no" answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR SCRAPERS, MOTOR GRADERS, AND OTHER MOBILE EQUIPMENT

Contract # and title:			
Equipment name and number: owned or leased?			
Contractor:		Subcontractor:	
Contractor inspector:		Date inspected:	
	Yes	No	N/A
1. Are initial and daily/shift inspection records available? (16.A.01 & .02)			
2. Are only qualified operators assigned to operate equipment? (16.A.04)			
3. Are sufficient lights provided for night operations? (16.A.11)			
4. Does the unit have as a minimum a 5-B:C fire extinguisher? (16.A.26)			
5. Is there an effective working reverse alarm? (16.B.01)			
6. Is the unit shut down for refueling? (16.A.14)			
7. Are moving parts, shafts, sprockets, belts, etc., guarded? (16.B.03, .07 and .13)			
8. Is protection against hot surfaces, exhausts, etc., provided? (16.B.03 and .13)			
9. Are fuel tanks located in a manner to prevent spills or overflow from running onto engine exhaust or electrical equipment? (16.B.04)			
10. Are exhaust discharges directed so they do not endanger persons or obstruct operator vision? (16.B.05)			

	Yes	No	N/A
11. Are seat belts provided for each person required to ride on the equipment? (16.B.08)			
12. Is protection (grills, canopies, screens) provided to shield operators from falling or flying objects? (16.B.10 and .11)			
13. Is roll over protection provided? (16.B.12)			
14. Is a safe means of access to the cab provided (steps, grab bars, non-slip surfaces)? (16.B.03)_			
15. Are adequate head and tail lights provided? (16.A.07)			
16. Have brakes been tested and found satisfactory? (16.A.07)			
17. Does the unit have an emergency brake which will automatically stop the equipment upon brake failure? Is this system manually operable from the drivers position? (16.A.07)			
18. Is all equipment with windshields equipped with powered wipers and defogging or defrosting system? (16.A.07)			
19. Are all vehicles which will be parked or moving slower than normal traffic on haul roads equipped with a yellow flashing light or flasher visible from all directions? (16.A.13)			
20. Is the slow moving emblem used on all vehicles which by design move at 25 MPH or less on public roads? (08A.04)			

21. Have air tanks been tested and certified? (20.A.01)	Yes	No	N/A
22. Is an air pressure gage in working condition installed on the unit? (20.A.12)			
23. Does the air tank have an accessible drain valve? (20.B.17)			
24. Remarks: (Enter action taken for all "no" answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager			

SAFETY CHECKLIST FOR MATERIAL HOISTS			
Contract # and title:			
Equipment name & number:			
Contractor:		Subcontractor:	
Contract Inspector:		Date inspected:	
	Yes	No	N/A
1. Are all hoist towers, masts, guys or braces, counterweights, drive machinery supports, sheave supports, platforms, supporting structures, and accessories designed by a licensed engineer? (16.K.02)			
2. Is a copy of the hoist operating manual available? (16.K.04)			
3. Do all floors and platforms have slip-resistant surfaces? (16.K.08)			
4. Are landings and runways adequately barricaded and is overhead protection provided where needed? (16.K.08)			
5. Are hoisting ropes installed IAW manufacturer's instructions? (16.K.10)			
6. Are operating rules posted at the hoist operator's station? (16.K.14)			
7. Are air powered hoists connected to an air supply of sufficient capacity and pressure to safely operate the hoist? (16.K.15)			
8. Are pneumatic hoses secured by some positive means to prevent accidental disconnection? (16.K.15)			
9. Remarks: (Enter actions taken for all "no" answers.)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR EARTH DRILLING EQUIPMENT

Contract # and title:			
Equipment name & number:			
Contractor:		Subcontractor:	
Contractor inspector:		Date inspected:	
	Yes	No	N/A
1. Is a copy of the manual for all drilling equipment available? (16.M.01)			
2. Have all overhead electrical hazards and potential ground hazards been identified in a site layout plan and addressed in an activity hazard analysis? (16.M.02)			
3. Are MSDSs for all drilling fluids available? (16.M.05)			
4. Does the drilling equipment have 2 easily accessible emergency shut down devices (one for the operator and one for the helper)? (16.M.06)			
5. Is the equipment posted with a warning of electrical hazards? (16.M.06)			
6. Is there a spotter or an electrical proximity warning device available to ensure safe distances from power lines are maintained? (16.M.06)			
7. Remarks: (Enter actions taken for "no" answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager			

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE <i>(Read instructions on the reverse side prior to initiating this form)</i>	DATE	TRANSMITTAL NO.
---	------	-----------------

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO:	FROM:	CONTRACT NO.	CHECK ONE: <input type="checkbox"/> THIS IS A NEW TRANSMITTAL <input type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL _____
-----	-------	--------------	--

SPECIFICATION SEC. NO. <i>(Cover only one section with each transmittal)</i>	PROJECT TITLE AND LOCATION	CHECK ONE: THIS TRANSMITTAL IS FOR <input type="checkbox"/> FIO <input type="checkbox"/> GOV'T. APPROVAL
--	----------------------------	---

ITEM NO.	DESCRIPTION OF ITEM SUBMITTED <i>(Type size, model number/etc.)</i>	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. <i>(See instruction no. 8)</i>	NO. OF COPIES	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE	VARIATION <i>(See instruction No. 6)</i>	FOR CE USE CODE
				SPEC. PARA. NO.	DRAWING SHEET NO.			
<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>e.</i>	<i>f.</i>	<i>g.</i>	<i>h.</i>	<i>i.</i>

REMARKS	I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as other wise stated. <div>NAME AND SIGNATURE OF CONTRACTOR</div>
---------	---

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED <i>(List by Item No.)</i>	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE
---	--	------

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.
4. Submittals requiring expeditious handling will be submitted on a separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

- | | |
|---|---|
| A -- Approved as submitted. | E -- Disapproved (See attached). |
| B -- Approved, except as noted on drawings. | F -- Receipt acknowledged. |
| C -- Approved, except as noted on drawings.
Refer to attached sheet resubmission required. | FX -- Receipt acknowledged, does not comply
as noted with contract requirements. |
| D -- Will be returned by separate correspondence. | G -- Other (<i>Specify</i>) |

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERTY														Form Approved OMB No. 0704-0188			
PAGE OF PAGES																	
Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, Va 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.																	
1. FROM (Installation/Activity/Service and Zip code)			2. OPERATING UNIT		3. DISTRICT CODE		4. OPERATING AGENCY		5. DATE		6. JOB NUMBER		7. SERIAL NUMBER		8. CONTRACT NUMBER		
9. TO (Installation/Activity/Service and Zip code)			10. OPERATING UNIT		11. DISTRICT CODE		12. OPERATING AGENCY		13. ACCOUNTING NUMBER		14. ACCOUNTABLE OFFICE NUMBER		15. TYPE OF TRANSACTION <div style="display: flex; justify-content: space-between; font-size: x-small;"> <div>A. <input type="checkbox"/> NEW CONSTR. <input type="checkbox"/> EXISTING FAC. <input type="checkbox"/> CAPITAL IMP. <input type="checkbox"/> OTHER (Specify)</div> <div>B. <input type="checkbox"/> BENF/O <input type="checkbox"/> PHYSICAL COM. <input type="checkbox"/> FINAN. COM. <input type="checkbox"/> OTHER (Specify)</div> </div>			16. PROJECT NUMBER	
ITEM NO. 17	CATEGORY CODE 18	FACILITY (Category description) 19			NO. OF UNITS 20	TYPE 21	UNIT OF MEAS. 22	TOTAL QUANTITY 23		COST 24		DRAWING NUMBERS 25		REMARKS 26			
27.								28. ACCEPTED BY (Signature)						DATE			
TRANSFERRED BY (Signature)						DATE		TITLE (Post Engr./Base Civ. Engr./Navy Rep.)						29. PROPERTY VOUCHER NUMBER			
TITLE (Area Engr./Base Engr./DPWO)																	

30.

CONSTRUCTION DEFICIENCIES

31. REMARKS

INSTRUCTIONS

This form has been designed and issued for use in connection with the transfer of military real property between the military departments and to or from other government agencies. It supersedes ENG Forms 290 and 290B (formerly used by the Army and Air Force) and NAVDOCKS Form 2317 (formerly used by the Navy).

Existing instructions issued by the military departments relative to the preparation of the three superseded forms are applicable to this form to the

extent that the various items and columns on the superseded forms have been retained. Additional instructions, as appropriate, will be promulgated by the military departments in connection with any new items appearing hereon.

With the issuance of this DD form, it is not intended that the departments shall revise and reprint manuals and directives simply to show the number of this DD form. Such action can be accomplished through the normal course of revision for other reasons.

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure.)

Approved by
OM
0348-0046

1. Type of Federal Action: <input type="checkbox"/> a. contract <input type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance		2. Status of Federal Action: <input type="checkbox"/> a. bid/offer/application <input type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award		3. Report Type: <input type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change For Material Change Only: year _____ quarter _____ date of last report _____	
4. Name and Address of Reporting Entity: <input type="checkbox"/> Prime <input type="checkbox"/> Subawardee Tier _____, if known: Congressional District, if known:			5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime: Congressional District, if known:		
6. Federal Department/Agency:			7. Federal Program Name/Description: CFDA Number, if applicable: _____		
8. Federal Action Number, if known:			9. Award Amount, if known: \$ _____		
10. a. Name and Address of Lobbying Entity <i>(if individual, last name, first name, MI):</i>			b. Individuals Performing Services <i>(including address if different from No. 10a)</i> <i>(last name, first name, MI):</i>		
(attach Continuation Sheet(s) SF-LLL-A, if necessary)					
11. Amount of Payment (check all that apply): \$ _____ <input type="checkbox"/> actual <input type="checkbox"/> planned			13. Type of Payment (check all that apply): <input type="checkbox"/> a. retainer <input type="checkbox"/> b. one-time fee <input type="checkbox"/> c. commission <input type="checkbox"/> d. contingent fee <input type="checkbox"/> e. deferred <input type="checkbox"/> f. other; specify: _____		
12. Form of Payment (check all that apply): <input type="checkbox"/> a. cash <input type="checkbox"/> b. in-kind; specify: nature _____ value _____					
14. Brief Description of Services Performed or to be Performed and Date(s) of Service, including officer(s), employee(s), or Member(s) contacted, for Payment indicated in Item 11: (attach Continuation Sheet(s) SF-LLL-A, if necessary)					
15. Continuation Sheet(s) SF-LLL-A attached: <input type="checkbox"/> Yes <input type="checkbox"/> No					
16. Information requested through this form is authorized by title 31 U.S.C section 1352. This disclosure of lobbyig activities is a materia representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352 . This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to			Signature: _____ Print Name: _____ Title: _____ Telephone No.: _____ Date: _____		
Federal Use Only:			Authorized for Local Reproduction		

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with a covered Federal action. Use the SF-LLL-A Continuation Sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, state and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee", then enter the full name, address, city, state and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, state and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influence the covered Federal action.

(b) Enter the full names of the individuals(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).
11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
13. Check the appropriate box(es). Check all boxes that apply. If other, specify nature.

Provide a specific and detailed description of the services that the lobbyist has performed, or will be expected to perform, and the date(s) of any services rendered. Include all preparatory and related activity, not just time spent in

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, D.C. 20503.

**DISCLOSURE OF LOBBYING ACTIVITIES
CONTINUATION SHEET**

Approved by
OM
0348-0046

Reporting Entity: _____ Page _____ of _____

DIRECTORATE OF ENGINEERING & HOUSING EXCAVATION PERMIT

FB Reg 420-13

DATE

1. CLEARANCE IS REQUIRED TO PROCEED WITH WORK AT

ON WORK ORDER NO _____ CONTRACT NO _____

2. METHOD OF EXCAVATION

A. HAND

B. POWER SHOVEL

C. DITCHER

D. OTHER (SPECIFY)

3. SCOPE OF WORK (DEPTH, WIDTH, LENGTH, LOCATION, AND SKETCH AS APPLICABLE)
IF CONTRACT A COPY OF APPLICABLE DRAWINGS OR SKETCHES MUST BE ATTACHED.

4. DATE CLEARANCE REQUESTED

5. TERMINATION DATE OF CLEARANCE (60 DAYS UNLESS SPECIFIED)

6. REQUESTING ORGANIZATION OR COMPANY

7. PHONE NUMBER

8. SIGNATURE (REQUESTING OFFICIAL)

9. EXCAVATION CLEARANCE APPROVAL

UTILITY	REMARKS	SIGNATURE OF APPROVING OFFICIAL	DATE
ELECTRICAL UNDERGROUND DISTRIBUTION			
STEAM OR HTW DISTRIBUTION			
CHILLER DISTRIBUTION			
SEWER LINES			
WATER DISTRIBUTION			
NATURAL GAS DISTRIBUTION			
TELEPHONE (DOIM)			
OTHER			
TELEPHONE (CT&T)			

MEMORANDUM FOR DEH ENVIRONMENTAL OFFICE

SUBJECT: Landfill Permit Application

1. Fill in the following information for each Contractor vehicle:

- a. Landfill to Be Used: Sanitary _____ Demolition _____ Both _____
- b. Company Name: _____
- c. Contract Number: _____
- d. Project Title: _____
- e. Project Location: _____
- f. Date of Notice to Proceed: _____
- g. Project Length (In Days): _____
- h. Vehicle Make: _____
- i. Vehicle License Plate Number: _____
- j. Contract Inspector: _____

2. Note: Applications must be forwarded to the Environmental Office by a Government Official (e.g., Contracting Officer's Representative or Project Inspector). Applications delivered on any working day will be processed and available for pickup the following workday by 0830.

FORT BRAGG ASBESTOS REMOVAL, TRANSPORTATION, AND
DISPOSAL DOCUMENTATION FORM

1. REMOVAL: ON _____ (SY/LF/CF/OR POUNDS) OF
ASBESTOS CONTAINING MATERIAL REMOVED FROM BUILDING #_____,
_____ (STREET ADDRESS), FORT BRAGG, NC, PER
_____ (WORK ORDER/CONTRACT NUMBER) WAS PREPARED FOR MOVEMENT TO THE
LANDFILL UNDER THE SUPERVISION OF _____ (PRINT NAME OF
SUPERVISOR) REPRESENTING _____ (NAME OF
FIRM/ORGANIZATION).

(SIGNATURE OF SUPERVISOR)

2. TRANSPORTATION: ON _____ THE ACM MENTIONED ABOVE WAS TRANSPORTED
ON THE VEHICLE AUTHORIZED BY LANDFILL VEHICLE PERMIT NUMBER _____ BY

(PRINT NAME OF DRIVER) _____ (SIGNATURE
OF DRIVER) TO THE LONGSTREET LANDFILL ON LONGSTREET ROAD, FORT BRAGG, NC.

3. DISPOSAL: THE ACM DESCRIBED IN PARAGRAPH 1 WAS DELIVERED BY THE VEHICLE
IDENTIFIED ABOVE TO THE LONGSTREET LANDFILL AND RECEIVED BY

(PRINT NAME OF LANDFILL OPERATOR)

I CERTIFY THAT THE LANDFILL HAS BEEN APPROVED FOR THE DISPOSAL OF ASBESTOS.
THE MATERIAL DELIVERED WILL BE COVERED WITH NONASBESTOS MATERIAL IN THE
PRESCRIBED MANNER.

(PRINT NAME OF OPERATOR)

(SIGNATURE)

(DATE)

REAL PROPERTY INVENTORY

ITEM	TALLY	TOTAL
COMMODOES		
LAVATORIES		
URINALS		
EXHAUST FAN (9")		
EXHAUST FAN (OTHER)		
WATER COOLER		
HOTWATER HEATER		
MOP SINK		
AC PLANT	LS 5 TN. 5-25 TN. 25-100 TN. OVER 100 TN.	
AS (WINDOW TYPE)		
FIRE ALARM SYSTEM	MANUAL HALON SPRINKLER	
EMERGENCY LIGHTS		
UNIT HEATER		
STRIP HEATER		
COOLING TOWER		
WALK-IN COOLER		
AIR CURTAIN		
EYE WASH		
SHOWERS		
BOILER	GAS FIRED OIL FIRED STEAM	
FUEL TANK	UNDERGROUND OUTSIDE	

REAL PROPERTY INVENTORY

ITEM	TALLY	TOTAL
WASH BASIN		
AIR COMPRESSOR		
HOISTS		
INVENTORY BY:		DATA:
RECONCILED BY:		DATA:

REAL PROPERTY INVENTORY

[illegible]

DESCRIPTION/SPECIFICATIONS

TABLE OF CONTENTS

<u>Section Number</u>	<u>Section Title</u>
	<u>DIVISION 1 - GENERAL</u>
01005	Work Schedule
01420	Sources for Reference Publications
01330	Submittal Procedures w/ENG Form 4288
01451A	Contractor Quality Control
01500	Temporary Construction Facilities
01780A	Closeout Submittals
	<u>DIVISION 2 - SITE WORK</u>
02050	Demolition
02081	Asbestos Removal
02090	Removal and Disposal of Lead-Containing Paint
02956	Environmental Protection During Construction
	<u>DIVISION 6 - WOOD AND PLASTICS</u>
06100	Rough Carpentry
	<u>DIVISION 7 - THERMAL AND MOISTURE PROTECTION</u>
07111	Elastomeric Membrane Waterproofing
07220	Roof Insulation
07311	Roofing, Strip Shingles
07414	Clay Roof Tile
07415	Metal Roofing, Factory-Color-Finished
07510	Built-Up Roofing
07511	Multi-Ply Modified Bitumen Roofing System
07530	Elastomeric Roofing (EPDM)
07540	Elastomeric Roofing, Fluid Applied
07600	Sheet Metalwork, General
07920	Caulking and Sealants
	<u>DIVISION 9 - FINISHES</u>
09900	Painting, General
	Appendix A - Roof Details

SECTION 01005

WORK SCHEDULE

1. GENERAL: All existing materials shall remain the property of the Government unless otherwise indicated. All material that remains the property of the Government will be disposed of as directed by the Contracting Officer.

Existing components and materials shown or specified for removal or required for installation of new components shall be dismantled, salvaged, and prepared for storage or disposal. All salvageable materials and all debris shall be disposed of in a manner directed by the Contracting Officer. Unless otherwise directed, salvageable materials and debris will be disposed of at the closest approved disposal site or at a point or points designated by the Contracting Officer.

2. REMOVAL OF DEBRIS: The Contractor shall remove all debris from the project site at the end of each workday. All debris shall be securely loaded and covered during transit.

3. OMITTED

4. SCOPE OF WORK: The work consists of furnishing all labor, equipment, and materials necessary to perform all work in strict accordance with these specifications, schedules, and applicable NRCA details. The scope of work of this contract includes, but is not limited to, the following specific items of work:

4.1 Architectural Work

4.1.1 The Contractor shall provide roof repairs to match adjacent materials on various type roof systems and facilities at Fort Bragg, North Carolina. Quantities of materials will be negotiated and prices will be as shown in the Schedule (Section 00010). Should any materials not be available, the contractor shall match color, texture and pattern as close as possible with other manufacturers' product and the COR approval.

4.1.2 The Contractor shall provide total roof system replacement on selected facilities. Replacement of roof systems shall include deteriorated decking, insulations, nailers, cants, equipment curbs, membranes, gutters, downspouts, flashings, drip edge, vent boots, and pitch pockets. Roof mounted equipment and electrical disconnects shall be remounted and reconnected.

4.1.3 Repairs and systems replaced shall comply with National Roofing Contractors Association (NRCA) typical details. The Contractor shall provide a two year warranty for roof repairs and a twenty year warranty for replacement of roof systems.

4.1.4 The Contractor shall respond to site investigation, by the COR within two (2) hours after emergency call and twenty four (24) hours routine call and provide a proposal within two (2) days.

4.1.5 The Contractor shall be responsible for providing materials tests for asbestos, lead content, roof pull and core samples. See "GUIDELINES FOR FORT BRAGG ROOFING REPLACEMENT CONTRACTORS" (attached at the end of this section) for ACM and LBM removal.

4.1.6 The Contracting Office will provide designs showing the limits of work and will be responsible for selecting NRCA details.

END

August 1996

GUIDELINES FOR FORT BRAGG ROOFING REPLACEMENT CONTRACTORS

1. Contractor is responsible for identifying all asbestos and lead hazards that may be encountered during the course of the removal of roofing materials and that may be disturbed while proffering the removal and put back. In accordance with OSHA 29 CFR 1926.1101 (K) Communication of Hazards.
2. Inspection for the presence of asbestos-containing materials (ACM) and lead based materials (LBM).
3. The inspection for asbestos-containing materials must be conducted by a North Carolina Accredited Inspector who has a current Inspection Number.
4. Asbestos in asphalt or fiberglass roofing shingles, in felts in built-up roofs and in roof flashings is typically tightly bound and not released under normal conditions. The National Emission Standards for Hazardous Air Pollutants, 40 CFR Part 763, Appendix A, Subpart F, Section 1 (NESHAP) identifies roofing materials that are in good condition as Category I non-friable asbestos-containing materials.
5. If these materials are removed using (non-friable) work practices the removal is exempt from the North Carolina Health Hazards Control Branch Occupational & Environmental Epidemiology Section regulations. The Contractor will still need to follow the NESHAP regulations, and the OSHA regulations pertaining to the removal of ACM and LBM.
6. If the removal is a friable removal or if it becomes a friable removal the Contractor must comply to the NC HHCB regulations as well as NESHAP and OSHA regulations.
7. Starting July 1996 a Asbestos Roofing Worker and Supervisor Accreditation has been added to regulations (Section .0600- Asbestos Hazard Management Program.

Health Hazards Control Branch
Occupational & Environmental Epidemiology Section
N.C. Department of Environment, Health and Natural Resources
P.O. Box 27687
Raleigh, N.C. 27611-7687
919 733-0820 phone
919 733-8493 fax

8. Non-friable roofing materials become friable under certain conditions. as determined by a N.C. accredited Management Planner or Abatement Designer.

- a. the materials are in poor condition (become brittle and easily crumbled)
- b. the materials are subject to sanding, grinding, cutting or abrading.
- c. where the roof's area is 5,580 sf. or greater of asbestos-containing bituminous roofing material, where a rotating blade, roof cutter, or similar equipment is used in the removal process.
- d. when 160 sf. of asbestos cement shingle or other Category II roofing materials which are in poor condition or where the removal method will result in the material being crumbled, pulverized or reduced to a powder.

9. Contractor should have the removal project designed by an N.C. accredited designer.

10. Asbestos Waste Shipment and Disposal- Transport and disposal shall occur in a manner that will not permit the release of fibers into the air or water to leak. The disposal shall occur at a landfill permitted or approved to accept asbestos waste. N.C. Waste Shipment Manifest must be used when shipping asbestos waste. Waste shipping regulations are covered by N.C. HHMC, DOT & OSHA 29 CFR 1910.1101

DO NOT BURN ANY ASBESTOS-CONTAINING MATERIALS

These guidelines are to be used to assist the contractor and make him aware of the different regulations pertaining to the removal and disposal of asbestos-containing roofing materials on the Fort Bragg Reservation. These guidelines are not to be used as a removal design.

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01420

SOURCES FOR REFERENCE PUBLICATIONS

08/02

PART 1 GENERAL

1.1 REFERENCES

1.2 ORDERING INFORMATION

-- End of Section Table of Contents --

SECTION 01420

SOURCES FOR REFERENCE PUBLICATIONS

08/02

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number.

ACI INTERNATIONAL (ACI)
P.O. Box 9094
Farmington Hills, MI 48333-9094
Ph: 248-848-3700
Fax: 248-848-3701
Internet: <http://www.aci-int.org>

AIR CONDITIONING AND REFRIGERATION INSTITUTE (ARI)
4301 North Fairfax Dr., Suite 425
ATTN: Pubs Dept.
Arlington, VA 22203
Ph: 703-524-8800
Fax: 703-528-3816
E-mail: ari@ari.org
Internet: <http://www.ari.org>

AIR CONDITIONING CONTRACTORS OF AMERICA (ACCA)
2800 Shirlington Road, Suite 300
Arlington, VA 22206
Ph: 703-575-4477
FAX: 703-575-4449
Internet: <http://www.acca.org>

AIR DIFFUSION COUNCIL (ADC)

1000 East Woodfield Road, Suite 102
Shaumburg, IL 60173-5921
Ph: 847-706-6750
Fax: 847-706-6751
Internet: <http://www.flexibleduct.org>

AIR MOVEMENT AND CONTROL ASSOCIATION (AMCA)
30 W. University Dr.
Arlington Heights, IL 60004-1893
Ph: 847-394-0150
Fax: 847-253-0088
Internet: <http://www.amca.org>

ALUMINUM ASSOCIATION (AA)

900 19th Street N.W.
Washington, DC 20006
Ph: 202-862-5100
Fax: 202-862-5164
Internet: <http://www.aluminum.org>

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)
1827 Walden Ofc. Sq.
Suite 104
Schaumburg, IL 60173-4268
Ph: 847-303-5664
Fax: 847-303-5774
Internet: <http://www.aamanet.org>

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)
444 N. Capital St., NW, Suite 249
Washington, DC 20001
Ph: 800-231-3475 202-624-5800
Fax: 800-525-5562 202-624-5806
Internet: <http://www.aashto.org>

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)
P.O. Box 12215
Research Triangle Park, NC 27709-2215
Ph: 919-549-8141
Fax: 919-549-8933
Internet: <http://www.aatcc.org>

AMERICAN BEARING MANUFACTURERS ASSOCIATION (ABMA)
2025 M Street, NW, Suite 800
Washington, DC 20036
Ph: 202-367-1155
Fax: 202-367-2155
Internet: <http://www.abma-dc.org>

AMERICAN BOILER MANUFACTURERS ASSOCIATION (ABMA)
4001 North 9th Street, Suite 226
Arlington, VA 22203-1900

Ph: 703-522-7350
Fax: 703-522-2665
Internet: <http://www.abma.com>

AMERICAN CONCRETE PIPE ASSOCIATION (ACPA)
222 West Las Colinas Blvd., Suite 641
Irving, TX 75039-5423
Ph: 972-506-7216 or 800-290-2272
Fax: 972-506-7682
Internet: <http://www.concrete-pipe.org>
e-mail: info@concrete-pipe.org

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)
1330 Kemper Meadow Dr.
Suite 600
Cincinnati, OH 45240
Ph: 513-742-2020
Fax: 513-742-3355
Internet: <http://www.acgih.org>
E-mail: pubs@acgih.org

AMERICAN FOREST & PAPER ASSOCIATION (AF&PA)
American Wood Council
ATTN: Publications Dept.
1111 Nineteenth St. NW, Suite 800
Washington, DC 20036
Ph: 800-294-2372 or 202-463-2700
Fax: 202-463-2471
Internet: <http://www.afandpa.org/awc/>

AMERICAN GAS ASSOCIATION (AGA)
400 N. Capitol St. N.W. Suite 450
Washington, D.C. 20001
Ph: 202-824-7000
Fax: 202-824-7115
Internet: <http://www.aga.org>

AMERICAN GAS ASSOCIATION LABORATORIES (AGAL)
400 N. Capitol St. N.W. Suite 450
Washington, D.C. 20001
Ph: 202-824-7000
Fax: 202-824-7115
Internet: <http://www.aga.org>

AMERICAN GEAR MANUFACTURERS ASSOCIATION (AGMA)
1500 King St., Suite 201
Alexandria, VA 22314-2730
Ph: 703-684-0211
Fax: 703-684-0242
Internet: <http://www.agma.org>

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
One East Wacker Dr., Suite 3100
Chicago, IL 60601-2001

Ph: 312-670-2400
Publications: 800-644-2400
Fax: 312-670-5403
Internet: <http://www.aisc.org>

AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC)
7012 So. Revere Parkway, Suite 140
Englewood, CO 80112
Ph: 303-792-9559
Fax: 303-792-0669
Internet: <http://www.aitc-glulam.org>

AMERICAN IRON AND STEEL INSTITUTE (AISI)
1101 17th St., NW Suite 1300
Washington, DC 20036
Ph: 202-452-7100
Internet: <http://www.steel.org>

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
1819 L Street, NW, 6th Floor
Washington, DC 20036
Ph: 202-293-8020
Fax: 202-293-9287
Internet: <http://www.ansi.org/>

Note --- Documents beginning with the letter "S" can be ordered from:

Acoustical Society of America
Standards and Publications Fulfillment Center
P. O. Box 1020
Sewickley, PA 15143-9998
Ph: 412-741-1979
Fax: 412-741-0609
Internet: <http://asa.aip.org>
General e-mail: asa@aip.org
Publications e-mail: asapubs@abdintl.com

AMERICAN NURSERY AND LANDSCAPE ASSOCIATION (ANLA)
1250 I St., NW, Suite 500
Washington, DC 20005-3922
Ph: 202-789-2900
FAX: 202-789-1893
Internet: <http://www.anla.org>

AMERICAN PETROLEUM INSTITUTE (API)
1220 L St., NW
Washington, DC 20005-4070
Ph: 202-682-8000
Fax: 202-682-8223
Internet: <http://www.api.org>

AMERICAN PUBLIC HEALTH ASSOCIATION (APHA)
800 I Street, NW

Washington, DC 20001
PH: 202-777-2742
FAX: 202-777-2534
Internet: <http://www.apha.org>

AMERICAN RAILWAY ENGINEERING & MAINTENANCE-OF-WAY ASSOCIATION
(AREMA)
8201 Corporate Dr., Suite 1125
Landover, MD 20785-2230
Ph: 301-459-3200
Fax: 301-459-8077
Internet: <http://www.arema.org>

AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (ASNT)
1711 Arlingate Lane
P.O. Box 28518
Columbus, OH 43228-0518
Ph: 800-222-2768
Fax: 614-274-6899
Internet: <http://www.asnt.org>

AMERICAN SOCIETY FOR QUALITY (ASQ)
600 North Plankinton Avenue
Milwaukee, WI 53202-3005
Ph: 800-248-1946
Fax: 414-272-1734
Internet: <http://www.asq.org>

ASTM INTERNATIONAL (ASTM)

100 Barr Harbor Drive
West Conshohocken, PA 19428-2959
Ph: 610-832-9585
Fax: 610-832-9555
Internet: <http://www.astm.org>

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
1801 Alexander Bell Drive
Reston, VA 20191-4400
Ph: 703-295-6300 - 800-548-2723
Fax: 703-295-6222
Internet: <http://www.asce.org>
e-mail: marketing@asce.org

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING
ENGINEERS (ASHRAE)
1791 Tullie Circle, NE
Atlanta, GA 30329
Ph: 800-527-4723 or 404-636-8400
Fax: 404-321-5478
Internet: <http://www.ashrae.org>

AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE)
901 Canterbury, Suite A

Westlake, OH 44145
Ph: 440-835-3040
Fax: 440-835-3488
E-mail: asse@ix.netcom.com
Internet: <http://www.asse-plumbing.org>

AMERICAN WATER WORKS ASSOCIATION(AWWA)
6666 West Quincy
Denver, CO 80235
Ph: 800-926-7337 - 303-794-7711
Fax: 303-794-7310
Internet: <http://www.awwa.org>

AMERICAN WELDING SOCIETY (AWS)
550 N.W. LeJeune Road
Miami, FL 33126
Ph: 800-443-9353 - 305-443-9353
Fax: 305-443-7559
Internet: <http://www.amweld.org>

AMERICAN WOOD-PRESERVERS' ASSOCIATION (AWPA)
P.O. Box 5690
Grandbury, TX 76049-0690
Ph: 817-326-6300
Fax: 817-326-6306
Internet: <http://www.awpa.com>

APA - THE ENGINEERED WOOD ASSOCIATION (APA)
P.O.Box 11700
Tacoma, WA 98411-0700
Ph: 253-565-6600
Fax: 253-565-7265
Internet: <http://www.apawood.org>

ARCHITECTURAL & TRANSPORTATION BARRIERS COMPLIANCE BOARD (ATBCB)

The Access Board
1331 F Street, NW, Suite 1000
Washington, DC 20004-1111
PH: 202-272-5434
FAX: 202-272-5447
Internet: <http://www.access-board.gov>

ARCHITECTURAL WOODWORK INSTITUTE (AWI)
1952 Isaac Newton Square West
Reston, VA 20190
Ph: 703-733-0600
Fax: 703-733-0584
Internet: <http://www.awinet.org>

ASBESTOS CEMENT PIPE PRODUCERS ASSOCIATION (ACPPA)
PMB114-1745 Jefferson Davis Highway
Arlington, VA 22202
Ph: 514-861-1153

Fax: 514-861-1152
Internet: None

ASM INTERNATIONAL (ASM)
9639 Kinsman Road
Materials Park, OH 44073-0002
Ph: 440-338-5151
Fax: 440-338-4634
Internet: <http://www.asm-intl.org>
Order Publications From:
ASM International
ATTN: MSC/Book Order
P.O. Box 473
Novelty, OH 44072-9901

ASME INTERNATIONAL (ASME)
Three Park Avenue
New York, NY 10016-5990
Ph: 212-591-7722
Fax: 212-591-7674
Internet: <http://www.asme.org>

ASPHALT INSTITUTE (AI)
Research Park Dr.
P.O. Box 14052
Lexington, KY 40512-4052
Ph: 859-288-4960
Fax: 859-288-4999
Internet: <http://www.asphaltinstitute.org>

ASSOCIATED AIR BALANCE COUNCIL (AABC)
1518 K St., NW, Suite 503
Washington, DC 20005
Ph: 202-737-0202
Fax: 202-638-4833
Internet: <http://www.aabchq.com>
E-mail: aabchq@aol.com

ASSOCIATION FOR THE ADVANCEMENT OF MEDICAL INSTRUMENTATION (AAMI)
1110 N. Glebe Rd., Suite 220
Arlington, VA 22201-5762
Ph: 1-8001-332-2264 or 703-525-4890
Fax: 703-276-0793
Internet: <http://www.aami.org>

ASSOCIATION OF EDISON ILLUMINATING COMPANIES (AEIC)
600 No. 18th St.
P.O. Box 2641
Birmingham, AL 35291
Ph: 205-257-2530
Fax: 205-257-2540
Internet: <http://www.aeic.org>

ASSOCIATION OF HOME APPLIANCE MANUFACTURERS (AHAM)

1111 19th St. NW., Suite 402
Washington, DC 20036
Ph: 202-872-5955
Fax: 202-872-9354
Internet: <http://www.aham.org>

BIFMA INTERNATIONAL (BIFMA)
2680 Horizon Drive SE, Suite A-1
Grand Rapids, MI 49546-7500
Ph: 616-285-3963
Fax: 616-285-3765
Internet: <http://www.bifma.com>
E-mail: email@bifma.com

BIOCYCLE, JOURNAL OF COMPOSTING AND RECYCLING (BIOCYCLE)
The JG Press Inc.
419 State Avenue
Emmaus PA. 18049
Ph: 610-967-4135
Internet: <http://www.biocycle.net>
E-mail: jgpress@jgpress.com

BRICK INDUSTRY ASSOCIATION (BIA)
11490 Commerce Park Dr., Suite 308
Reston, VA 22091-1525
Ph: 703-620-0010
Fax: 703-620-3928
Internet: <http://www.brickinfo.org>

BRITISH STANDARDS INSTITUTE (BSI)
389 Chiswick High Road
London W4 4AL
United Kingdom
Phone: +44 (0)20 8996 9000
Fax: +44 (0)20 8996 7400
Email: Info@bsi-global.com
Website: <http://www.bsi-global.com>

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)
355 Lexington Ave.
17th floor
New York, NY 10017-6603
Ph: 212-297-2122
Fax: 212-370-9047
Internet: <http://www.buildershardware.com>

CARPET AND RUG INSTITUTE (CRI)
310 Holiday Ave.
Dalton, GA 30720
P.O. Box 2048
Dalton, GA 30722-2048
Ph: 1-800-882-3176 or 706-278-0232
Fax: 706-278-8835

Internet: <http://www.carpet-rug.com>

CAST IRON SOIL PIPE INSTITUTE (CISPI)
5959 Shallowford Rd., Suite 419
Chattanooga, TN 37421
Ph: 423-892-0137
Fax: 423-892-0817
Internet: <http://www.cispi.org>

CEILINGS & INTERIOR SYSTEMS CONSTRUCTION ASSOCIATION (CISCA)
1500 Lincoln Highway, Suite 202
St. Charles, IL 60174
Ph: 630-584-1919
Fax: 630-584-2003
Internet: <http://www.cisca.org>

CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)

1600 Clifton Road
Atlanta, GA 30333
PH: 404-639-3311
FAX:
Internet: <http://www.cdc.gov>

CHEMICAL FABRICS & FILM ASSOCIATION (CFFA)

1300 Sumner Ave.
Cleveland OH 44115-2851
PH: 216-241-7333
FAX: 216-241-0105
Internet: <http://www.chemicalfabricsandfilm.com/>
OK 4/02

CHLORINE INSTITUTE (CI)
2001 L St., NW Suite 506
Washington, DC 20036
Ph: 202-775-2790
Fax: 202-223-7225
Internet: <http://www.cl2.com>

COMPRESSED AIR AND GAS INSTITUTE (CAGI)

1300 Sumner Ave.
Cleveland OH 44115-2851
PH: 216-241-7333
FAX: 216-241-0105
Internet: <http://www.cagi.org/>

COMPRESSED GAS ASSOCIATION (CGA)
4221 Walney Road, 5th Floor
Chantilly, VA 20151-2923
Ph: 703-788-2700
Fax: 703-961-1831
Internet: <http://www.cganet.com>

e-mail: Customer_Service@cganet.com

CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
933 N. Plum Grove Rd.
Schaumburg, IL 60173-4758
Ph: 847-517-1200
Fax: 847-517-1206
Internet: <http://www.crsi.org/>

CONSUMER PRODUCT SAFETY COMMISSION (CPSC)
4330 East-West Highway
Bethesda, Maryland 20814-4408
Ph: 301-504-0990
Fx: 301-504-0124 and 301-504-0025
Internet: <http://www.cpsc.gov>

CONVEYOR EQUIPMENT MANUFACTURERS ASSOCIATION (CEMA)
6724 Lone Oak Blvd.
Naples, Florida 34109
Ph: 941-514-3441
Fax: 941-514-3470
Internet: <http://www.cemanet.org>

COOLING TECHNOLOGY INSTITUTE (CTI)
2611 FM 1960 West
Suite H-200
Houston, TX 77068-3730
Ph: 281-583-4087
Fax: 281-537-1721
Internet: <http://www.cti.org>

COPPER DEVELOPMENT ASSOCIATION (CDA)
260 Madison Ave.
New York, NY 10016
Ph: 212-251-7200
Fax: 212-251-7234
Internet: <http://www.copper.org>
E-mail: staff@cda.copper.org

CRANE MANUFACTURERS ASSOCIATION OF AMERICA (CMAA)
8720 Red Oak Blvd., Ste, 201
Charlotte, NC 28217 USA
Ph: 704-676-1190 or 800-722-6832
Fx: 704-676-1199
Internet: http://www.mhia.org/psc/psc_products_cranes.cfm

DISTRICT OF COLUMBIA MUNICIPAL REGULATIONS (DCMR)

441 4th Street NW
Washington DC 20001
PH: 202-727-1000
Internet: <http://www.abfa.com/dcdocs/dcmrlist.htm>

DOOR AND ACCESS SYSTEM MANUFACTURERS ASSOCIATION (DASMA)

1300 Sumner Avenue
Cleveland, OH 44115-2851
Ph: 216-241-7333
Fax: 216-241-0105
Internet: <http://www.dasma.com>
e-mail: dasma@dasma.com

DOOR AND HARDWARE INSTITUTE (DHI)
14150 Newbrook Dr.Suite 200
Chantilly, VA 20151-2223
Ph: 703-222-2010
Fax: 703-222-2410
Internet: <http://www.dhi.org>
e-mail: techdept@dhi.org

DUCTILE IRON PIPE RESEARCH ASSOCIATION (DIPRA)
245 Riverchase Parkway East, Suite 0
Birmingham, AL 35244
Ph: 205-402-8700
Fax: 205-402-8730
Internet: <http://www.dipra.org>
E-mail: info@dipra.org

EIFS INDUSTRY MEMBERS ASSOCIATION (EIMA)
3000 Corporate Center Drive, Suite 270
Morrow, GA 30260
Ph: 800-294-3462
Fax: 770-968-5818
Internet: <http://www.eima.com>

ELECTRICAL GENERATING SYSTEMS ASSOCIATION (EGSA)
1650 South Dixie Highway, Ste. 500
Boca Raton, FL 33432
Ph: 561-750-5575
Fax: 561-395-8557
Internet: <http://www.egsa.org>

ELECTRONIC INDUSTRIES ALLIANCE (EIA)
2500 Wilson Blvd.
Arlington, VA 22201-3834
Ph: 703-907-7500
Fax: 703-907-7501
Internet: <http://www.eia.org>

ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION (ERDA)
Organization abolished by Dept of Energy Act
(91 Stat 577)4 Aug 1977
Successor Organization is Department of Energy
PH:
FAX:
Internet: <http://www.mbe.doe.gov/>

ENGINE MANUFACTURERS ASSOCIATION (EMA)

Two North LaSalle Street, Suite 2200
Chicago, IL 60602
PH: 312-827-8700
FAX: 312-827-8737
Internet: <http://www.engine-manufacturers.org/>

ETL TESTING LABORATORIES (ETL)
Intertek Testing Services, ETL SEMKO
70 Codman Hill Road
Boxborough, MA 01719
PH: 1-800-967-5352
FAX: 1-800-813-9442
Internet: <http://www.etlsemko.com>
E-mail: info@etlsemko.com

EUROPEAN COMMITTEE FOR ELECTROTECHNICAL STANDARDIZATION (CENELEC)
CENELEC CS Info & Publications Department
Rue de Stassartstraat 35
1050 Brussels
Phone: + 32 2 519 68 71
Fax: + 32 2 519 69 19
Internet: <http://www.cenelec.org>

EXPANSION JOINT MANUFACTURERS ASSOCIATION (EJMA)
25 N Broadway
Tarrytown, NY 10591
Ph: 914-332-0040
Fax: 914-332-1541
Internet: <http://www.ejma.org>

FM GLOBAL (FM)
1301 Atwood Avenue
P.O. Box 7500
Johnston, RI 02919
Ph: (for publications) 781-255-6681
Ph: (Toll-Free): 877-364-6726
Fax: 781-255-0181
Internet: <http://www.fmglobal.com>

FLUID SEALING ASSOCIATION (FSA)
994 Old Eagle School Road #1019
Wayne, PA 19087
PH: 610-971-4850
FAX: 610-9971-4859
Internet: <http://www.fluidsealing.com>
E-mail: info@fluidsealing.com

FORESTRY SUPPLIERS (FSUP)
205 West Rankin St.
P.O. Box 8397
Jackson, MS 39284-8397
Ph: 601-354-3565
Fax: 601-292-0165
Internet: <http://www.forestry-suppliers.com>

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH
(FCCCHR)

University of South California
Kaprielian Hall 200
Los Angeles, CA 90089-2531
Ph: 213-740-2032
Fax: 213-740-8399
Internet: <http://www.usc.edu/dept/fccchr>

GEOLOGICAL SOCIETY OF AMERICA (GSA)

P.O. Box 9140
Boulder, CO 80301-9140
Ph: 800-443-4472
Fax: 303-357-1070
Internet: <http://www.geosociety.org>

GEOSYNTHETIC INSTITUTE (GSI)

475 Kedron Ave.
Folsom, PA 19033-1208
Ph: 610-522-8440
Fax: 610-522-8441
Internet: <http://www.geosynthetic-institute.org>

GLASS ASSOCIATION OF NORTH AMERICA (GANA)

2945 SW Wanamaker Drive, Suite A
Topeka, KS 66614-5321
Ph: 785-271-0208
Fax: 785-271-0166
Internet: <http://www.glasswebsite.com/GANA>

GYPSUM ASSOCIATION (GA)

810 First St. NE, Suite 510
Washington, DC 20002
Ph: 202-289-5440
Fax: 202-289-3707
Internet: <http://www.gypsum.org>

HARDWOOD PLYWOOD & VENEER ASSOCIATION (HPVA)

1825 Michael Faraday Dr.
P.O. Box 2789
Reston, VA 20195-0789
Ph: 703-435-2900
Fax: 703-435-2537
Internet: <http://www.hpva.org>

HEAT EXCHANGE INSTITUTE (HEI)

1300 Sumner Ave
Cleveland, OH 44115-2851
Ph: 216-241-7333
Fax: 216-241-0105
Internet: <http://www.heatexchange.org>
email: hei@heatexchange.org

HOIST MANUFACTURERS INSTITUTE (HMI)

8720 Red Oak Blvd., Suite 201
Charlotte, NC 28217
PH: 704-676-1190
FAX: 704-676-1199
Internet: http://www.mhia.org/psc/PSC_Products_Hoists.cfm

HOLLOW METAL MANUFACTURERS ASSOCIATION (HMMA)

NAAMM Headquarters
8 South Michigan Avenue, Suite 1000
Chicago, IL 60603
PH: 312-332-0405
FAX: 312-332-0706
Internet: <http://www.naamm.org/hmma.htm>

NOTE --- HMMA has merged with NAAAM.

H.P. WHITE LABORATORY (HPW)
3114 Scarboro Rd.
Street, MD 21154
Ph: 410-838-6550
fax: 410-838-2802
Internet: <http://www.hpwhite.com>

HYDRAULIC INSTITUTE (HI)
9 Sylvan Way, Suite 180
Parsippany, NJ 07054-3802
Ph: 888-786-7744 or 973-267-9700
Fax: 973-267-9055
Internet: <http://www.pumps.org>

HYDRONICS INSTITUTE DIVISION OF GAMA (HYI)
35 Russo Pl.
P.O. Box 218
Berkeley Heights, NJ 07922-0218
Ph: 908-464-8200
Fax: 908-464-7818
Internet: <http://www.gamanet.org/publist/hydroordr.htm>

IBM CORPORATION (IBM)
Publications
4800 Falls of the Neuse
Raleigh, NC 27609
Ph: 800-879-2755, Option 1
Fax: 800-445-9269
Internet: <http://www.ibm.com/shop/publications/order>

ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA)
120 Wall St., 17th Floor
New York, NY 10005-4001
Ph: 212-248-5000
Fax: 212-248-5017

Internet: <http://www.iesna.org>

INDUSTRIAL FASTENERS INSTITUTE (IFI)
1717 East 9th St., Suite 1105
Cleveland, OH 44114-2879
Ph: 216-241-1482
Fax: 216-241-5901
Internet: <http://www.industrial-fasteners.org>
e-mail: indfast@aol.com

INSECT SCREENING WEAVERS ASSOCIATION (ISWA)
DEFUNCT in 1997

INSTITUTE OF CLEAN AIR COMPANIES (ICAC)
1660 L St., NW, Suite 1100
Washington, DC 20036-5603
Ph: 202-457-0911
Fax: 202-331-1388
E-mail: jsmith@icac.com
Internet: <http://icac.com>

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
445 Hoes Ln, P. O. Box 1331
Piscataway, NJ 08855-1331
Ph: 732-981-0060 OR 800-701-4333
Fax: 732-981-9667
Internet: <http://www.ieee.org>
E-mail: customer.services@ieee.org

INSTITUTE OF ENVIRONMENTAL SCIENCES AND TECHNOLOGY (IEST)
940 East Northwest Highway
Mount Prospect, IL 60056
Ph: 847-255-1561
Fax: 847-255-1699
Internet: <http://www.iest.org>

INSULATED CABLE ENGINEERS ASSOCIATION (ICEA)
P.O. Box 1568
Carrollton, GA 30117
Ph: 770-830-0369
Fax: 770-830-8501
E-mail:
Internet: <http://www.icea.net>

INTERNATIONAL APPROVAL SERVICES (IAS)
8501 East Pleasant Valley Rd.
Cleveland, OH 44131
Ph: 216-524-4990
Fax: 216-328-8118
Internet: <http://www.csa-international.org>

INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS
(IAPMO)
20001 East Walnut Dr., So.

Walnut, CA 91789-2825
Ph: 909-595-8449
Fax: 909-594-3690
Fax for Stds: 909-594-5265
Internet: <http://www.iapmo.org>

INTERNATIONAL CODE COUNCIL (ICC)
5203 Leesburg Pike, Suite 600
Falls Church, VA 22041
Ph: 703-931-4533
Fax: 703-379-1546
Internet: <http://www.intlcode.org>

INTERNATIONAL CONCRETE REPAIR INSTITUTE (ICRI)

3166 S. River Road, Suite 132
Des Plaines, IL 60018
Phone: 847-827-0830
Fax: 847-827-0832
Internet: <http://www.icri.org>

INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS (ICBO)

5360 Workman Mill Rd.
Whittier, CA 90601-2298
Ph: 800-284-4406
Ph: 562-699-0541
Fax: 562-692-3853
Internet: <http://www.icbo.org>

INTERNATIONAL ELECTRICAL TESTING ASSOCIATION (NETA)

P.O. Box 687
106 Stone Street
Morrison, Colorado 80465
PH: 303-697-8441
FAX: 303-697-8431
Internet: <http://www.netaworld.org>

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)

3, rue de Varembe, P.O. Box 131
CH-1211 Geneva 20, Switzerland
Ph: 41-22-919-0211
Fax: 41-22-919-0300
Internet: <http://www.iec.ch>
e-mail: info@iec.ch

INTERNATIONAL GROUND SOURCE HEAT PUMP ASSOCIATION (IGSHPA)

Oklahoma State University
490 Cordell South
Stillwater OK 74078-8018
PH: 800-626-4747
FAX: 405-744-5283
Internet: <http://www.igshpa.okstate.edu/>

INTERNATIONAL INSTITUTE OF AMMONIA REFRIGERATION (IIAR)
1110 N. Glebe Rd., Suite 250
Arlington, VA 22201
Ph: 703-312-4200
Fax: 703-312-0065
Internet: <http://www.iiar.org>
e-mail: iiar@iiar.org

INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION (IMSA)
P.O. Box 539
165 East Union St.
Newark, NY 14513-0539
Ph: 315-331-2182
Ph: 800-723-4672
Fax: 315-331-8205
Internet: <http://www.imsasafety.org/>

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)
1, rue de Varembe'
Case Postale 56
CH-1211 Geneve 20 Switzerland
Ph: 41-22-749-0111
Fax: 41-22-733-3430
Internet: <http://www.iso.ch>
e-mail: central@iso.ch

INTERNATIONAL SLURRY SURFACING ASSOCIATION (ISSA)
3 Church Circle, PMB 250
Annapolis, MD 21401
Ph: 410-267-0023
Fax: 410-267-7546
Internet: <http://www.slurry.org>
e-mail: krissoff@slurry.org

INTERNATIONAL TELECOMMUNICATION UNION (ITU)
Order from:
U.S. Dept of Commerce
National Technical Information Service
5285 Port Royal Road.
Springfield, VA 22161
Ph: 703-605-6040
FAX: 703-605-6887
Internet: <http://www.ntis.gov>

For documents not avail from Dept of Commerce:
Sales Service
International Telecommunication Union
Place des Nations
CH-1211 Geneve 20
Switzerland
E-Mail: sales@itu.ch
Ph: 41.22.730.6141
Fax: 41.22.730.5194

Internet: <http://www.itu.org>

IPC - ASSOCIATION CONNECTING ELECTRONICS INDUSTRIES (IPC)
2215 Sanders Rd.
Northbrook, IL 60062-6135
Ph: 847-509-9700
Fax: 847-509-9798
Internet: <http://www.ipc.org>
e-mail: orderipc@ipc.org

IRON & STEEL SOCIETY (ISS)
186 Thorn Hill Road
Warrendale, PA 15086-7528
Ph: 724-776-1535 Ext 1
Fax: 724-776-0430
E-Mail: dennisf@iss.org
Internet: <http://www.issource.org>

ISA - THE INSTRUMENTATION, SYSTEMS AND AUTOMATION SOCIETY (ISA)
67 Alexander Drive
P.O. Box 12277
Research Triangle Park, NC 27709
Ph: 919-549-8411
Fax: 919-549-8288
e-mail: info@isa.org
Internet: <http://www.isa.org>

KITCHEN CABINET MANUFACTURERS ASSOCIATION (KCMA)
1899 Preston White Dr.
Reston, VA 20191-5435
Ph: 703-264-1690
Fax: 703-620-6530
Internet: <http://www.kcma.org>

L.H. BAILEY HORTORIUM (LHBH)

c/o Cornell University
Information and Referral Center
Day Hall Lobby
Ithaca, NY 14853-2801
PH: 607-254-INFO (4636)
Internet: <http://www.plantbio.cornell.edu/Hortorium>

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS
INDUSTRY (MSS)
127 Park St., NE
Vienna, VA 22180-4602
Ph: 703-281-6613
Fax: 703-281-6671
Internet: <http://www.mss-hq.com>
e-mail: info@mss-hq.com

MAPLE FLOORING MANUFACTURERS ASSOCIATION (MFMA)
60 Revere Dr., Suite 500

Northbrook, IL 60062
Ph: 847-480-9138
Fax: 847-480-9282
Internet: <http://www.maplefloor.org>

MARBLE INSTITUTE OF AMERICA (MIA)
30 Eden Alley, Suite 301
Columbus, OH 43215
Ph: 614-228-6194
Fax: 614-461-1497
Internet: <http://www.marble-institute.com>
e-mail: info@marble-institute.com

MASTER PAINTERS INSTITUTE (MPI)
4090 Graveley Street
Burnaby, BC CANADA V5C 3T6
PH: 888-674-8937
Fx: 888-211-8708
Internet: <http://www.paintinfo.com/mpi>

METAL BUILDING MANUFACTURERS ASSOCIATION (MBMA)
1300 Sumner Ave.
Cleveland, OH 44115-2851
Ph: 216-241-7333
Fax: 216-241-0105
Internet: <http://www.mbma.com>
e-mail: mbma@mbma.com

METAL LATH/STEEL FRAMING ASSOCIATION (ML/SFA)

NAAMM Headquarters
8 South Michigan Avenue, Suite 1000
Chicago, IL 60603
PH: 312-332-0405
FAX: 312-332-0706
Internet: <http://www.naamm.org/mlsfa.htm>

NOTE --- ML/SFA has merged with NAAMM.

MIDWEST INSULATION CONTRACTORS ASSOCIATION (MICA)
2017 So. 139th Cir.
Omaha, NE 68144
Ph: 402-342-3463
Fax: 402-330-9702
Internet: <http://www.micainsulation.org>
e-mail: info@micainsulation.org

MONORAIL MANUFACTURERS ASSOCIATION (MMA)

8720 Red Oak Blvd., Suite 201
Charlotte, NC 28217
PH: 704-676-1190
FAX: 704-676-1199
Internet: <http://www.mhia.org/>

NACE INTERNATIONAL (NACE)
1440 South Creek Drive
Houston, TX 77084-4906
Ph: 281-228-6200
Fax: 281-228-6300
Internet: <http://www.nace.org>

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)
8 S. Michigan Ave, Suite 1000
Chicago, IL 60603
Ph: 312-322-0405
Fax: 312-332-0706
Internet: <http://www.naamm.org>
e-mail: naamm@gss.net

NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS (NBBPVI)
1055 Crupper Ave.
Columbus, OH 43229-1183
Ph: 614-888-8320
Fax: 614-847-1147
Internet: <http://www.nationalboard.org>
e-mail: tbecker@nationalboard.org

NATIONAL CABLE TELEVISION ASSOCIATION (NCTA)
Now: National Cable Telecommunications Association
1724 Massachusetts Ave. NW
Washington, DC 20036-1969
Ph: 202-775-3550
Fax: 202-775-1055
Internet: <http://www.ncta.com>

NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
13750 Sunrise Valley Drive
Herndon, VA 20171
Ph: 703-713-1900
Fax: 703-713-1910
Internet: <http://www.ncma.org>

NATIONAL COUNCIL ON RADIATION PROTECTION AND MEASUREMENTS (NCRP)
7910 Woodmont Ave., Suite 800
Bethesda, MD 20814-3095
Ph: 800-229-2652
Ph. 301-657-2652
Fax: 301-907-8768
Internet: <http://www.ncrp.com>

NATIONAL DRILLING ASSOCIATION (NDA)

10901D Roosevelt Boulevard North, Suite 100
St. Petersburg, FL 33716
Ph: 727-577-5006
FAX: 727-577-5012
Internet: <http://www.nda4u.com/>
E-mail: info@nda4u.com

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
1300 N. 17th St., Suite 1847
Rosslyn, VA 22209
Ph: 703-841-3200
Fax: 703-841-3300
Internet: <http://www.nema.org/>
E-mail: jas_peak@nema.org

NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB)
8575 Grovemont Circle
Gaithersburg, MD 20877-4121
Ph: 301-977-3698
Fax: 301-977-9589
Internet: <http://www.nebb.org>

NATIONAL FENESTRATION RATING COUNCIL (NFRC)
1300 Spring Street, Suite 500
Silver Spring, MD 20910
Ph: 301-589-6372
Fax: 303-588-6342
Internet: <http://www.nfrc.org>
E-Mail: nfrcusa@aol.com or info@nfrc.com

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101
Ph: 617-770-3000
Fax: 617-770-0700
Internet: <http://www.nfpa.org>

NATIONAL FLUID POWER ASSOCIATION (NFLPA)
3333 N. Mayfair Rd.
Milwaukee, WI 53222-3219
Ph: 414-778-3344
Fax: 414-778-3361
Internet: <http://www.nfpa.com>
E-mail: nfpa@nfpa.com

NATIONAL HARDWOOD LUMBER ASSOCIATION (NHLA)
6830 Raleigh LaGrange Road
P.O. Box 34518
Memphis, TN 38184-0518
Ph: 901-377-1818
Fax: 901-382-6419
e-mail: info@natlhardwood.org
Internet: <http://www.natlhardwood.org>

NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES
(NICET)
1420 King Street
Alexandria, VA 22314-2794
Ph: 888-476-4238

Internet: <http://www.nicet.org>

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

Mail Stop C-13

4676 Columbia Parkway

Cincinnati, OH 45226-1998

Ph: 800-356-4674

Fx: 513-533-8573

Internet: <http://www.cdc.gov/niosh/homepage.html>

To order pubs for which a fee is charged, order from:

Superintendent of Documents

U.S. Government Printing Office

732 North Capitol Street, NW

Mailstop: SDE

Washington, DC 20401

Ph: 866-512-2800 or 202-512-1800

Fax: 202-512-2250

Internet: <http://www.gpo.gov>

NATIONAL INSTITUTE OF JUSTICE (NIJ)

National Law Enforcement and Corrections Technology Center

2277 Research Blvd. - Mailstop 1E

Rockville, MD 20850

Ph: 800-248-2742 or 301-519-5060

Fax: 301-519-5149

Internet: <http://www.nlectc.org>

e-mail: asknlectc@nlectc.org

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

100 Bureau Drive

Stop 3460

Gaithersburg, MD 20899-3460

Ph: 301-975-NIST

Internet: <http://www.nist.gov>

Order Publications From:

Superintendent of Documents

U.S. Government Printing Office

732 North Capitol Street, NW

Mailstop: SDE

Washington, DC 20401

Ph: 866-512-1800 or 202-512-1800

Fax: 202-512-2250

Internet: <http://www.gpo.gov>

or

National Technical Information Services (NTIS)

5285 Port Royal Rd.

Springfield, VA 22161

Ph: 703-605-6000

Fax: 703-605-6900

Internet: <http://www.ntis.gov>

NATIONAL LIME ASSOCIATION (NLA)

200 North Glebe Road, Suite 800

Arlington, VA 22203
PH: 703-243-5463
FAX: 703-243-5489
Internet: <http://www.lime.org>

NATIONAL OAK FLOORING MANUFACTURERS ASSOCIATION (NOFMA)
P.O. Box 3009
Memphis, TN 38173-0009
Ph: 901-526-5016
Fax: 901-526-7022
Internet: <http://www.nofma.org>

NATIONAL READY-MIXED CONCRETE ASSOCIATION (NRMCA)
900 Spring St.
Silver Spring, MD 20910
Ph: 301-587-1400
Fax: 301-585-4219
Internet: <http://www.nrmca.org>

NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
10255 W. Higgins Rd., Suite 600
Rosemont, IL 60018
Ph: 847-299-9070
Fax: 847-299-1183
Internet: <http://www.nrca.net>

NATIONAL TERRAZZO & MOSAIC ASSOCIATION (NTMA)
110 East Market St., Suite 200 A
Leesburg, Virginia 20176
Ph: 703-779-1022 or 800-323-9736
Fax: 703-779-1026
Internet: <http://www.ntma.com>
e-mail: info@ntma.com

NATURAL RESOURCE, AGRICULTURAL AND ENGINEERING SERVICE (NRAES)

Cooperative Extension
152 Riley-Robb Hall
Ithaca, NY 14853-5701
Ph: 607-255-7654
Fax: 607-254-8770
Internet: <http://www.nraes.org>
E-mail: nraes@cornell.edu

NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION (NAIMA)
44 Canal Center Plaza, Suite 310
Alexandria, VA 22314
Ph: 703-684-0084
Fax: 703-684-0427
Internet: <http://www.naima.org>
e-mail: insulation@naima.org

NORTHEASTERN LUMBER MANUFACTURERS ASSOCIATION (NELMA)
272 Tuttle Road

P.O. Box 87A
Cumberland Center, ME 04021
Ph: 207-829-6901
Fax: 207-829-4293
Internet: <http://www.nelma.org>
e-mail: info@nelma.org

NSF INTERNATIONAL (NSF)
ATTN: Publications
789 North Dixboro Rd.
P.O. Box 130140
Ann Arbor, MI 48113-0140
Ph: 734-769-8010
Fax: 734-769-0109
Toll Free: 800-NSF-MARK
Internet: <http://www.nsf.org>

PIPE FABRICATION INSTITUTE (PFI)
655 32nd Avenue, Suite 201
Lachine, QC, Canada H8T 3G6
Ph: 514-634-3434
Fax: 514-634-9736
Internet: <http://www.pfi-institute.org>
e-mail: pfi@pfi-institute.org

PLASTIC PIPE AND FITTINGS ASSOCIATION (PPFA)
800 Roosevelt Rd., Bldg C, Suite 20
Glen Ellyn, IL 60137
Ph: 630-858-6540
Fax: 630-790-3095
Internet: <http://www.ppfahome.org>

PLASTICS PIPE INSTITUTE (PPI)
1825 Connecticut Ave. NW
Washington, D. C. 20009
Ph: 202-462-9607
Fax: 202-462-9779
Internet: <http://www.plasticpipe.org>

PLUMBING AND DRAINAGE INSTITUTE (PDI)
45 Bristol Dr.
South Easton, MA 02375
Ph: 508-230-3516 or 800-589-8956
Fax: 508-230-3529
Internet: <http://www.pdionline.org>
E-Mail: info@pdionline.org

PLUMBING AND MECHANICAL CONTRACTORS ASSOCIATION (PMCA)
9450 SW Commerce Circle, Suite 310
Wilsonville, OR 97070-9626
Ph: 503-682-7919
Fax: 503-682-6241
Internet: <http://www.pmcaoregon.com/>

PLUMBING-HEATING-COOLING CONTRACTORS NATIONAL ASSOCIATION (PHCC)
180 S. Washington Street
P.O. Box 6808
Falls Church, VA 22040
Ph: 800-533-7694
Fax: 703-237-7442
Internet: <http://www.phccweb.org>

PORCELAIN ENAMEL INSTITUTE (PEI)
5696 Peachtree Parkway, PO Box 920220
Norcross, GA 30092
Ph: 770-242-2632
Fax: 770-446-1452
Internet: <http://www.porcelainenamel.com>
e-mail: penamel@aol.com

POST-TENSIONING INSTITUTE (PTI)
1717 West Northern Avenue, Suite 114
Phoenix, AZ 85021
Ph: 602-870-7540
Fax: 602-870-7541
Internet: <http://www.post-tensioning.org/>

PRECAST/PRESTRESSED CONCRETE INSTITUTE (PCI)
209 West Jackson Blvd.
Chicago, IL 60606-6938
Ph: 312-786-0300
Fax: 312-786-0353
Internet: <http://www.pci.org>
e-mail: info@pci.org

REDWOOD INSPECTION SERVICE (RIS)

405 Efrente Drive, Suite 200
Novato, CA 94949
Ph: 415-382-0662
Fax: 415-382-8531
Internet: <http://www.calredwood.org>
E-Mail: cjjourdain@worldnet.att.net

RUBBER MANUFACTURERS ASSOCIATION (RMA)

1400 K St., NW, Suite 900
Washington, DC 20005
Ph: 202-682-4846
Fax: 202-682-4854
Internet: <http://www.rma.org>
Order Publications from:
The Mail Room
P. O. Box 3147
Medina, OH 44258
Ph: 800-325-5095 EXT 242 or 330-723-2978
Fax: 330-725-0576

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

1939 Harrison Street, Suite 400
Oakland, CA 94612
Ph: 510-832-1415
FAX: 510-832-0359
Internet: <http://www.scs1.com>

SCREEN MANUFACTURERS ASSOCIATION (SMA)

2850 South Ocean Boulevard, Suite 114
Palm Beach, FL 33480-5535
Ph: 561-533-0991
Fax: 561-533-7466
e-mail: fitzgeraldscott@aol.com
Internet: <http://www.smacentral.org>

SEMICONDUCTOR EQUIPMENT AND MATERIALS INTERNATIONAL (SEMI)

3081 Zanker Road
San Jose, CA 95134
Phone: 1.408.943.6900
Fax: 1.408.428.9600
Internet: <http://www.semi.org>
E-mail: semihq@semi.org

SHEET METAL & AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
(SMACNA)

4201 Lafayette Center Dr.,
Chantilly, VA 20151-1209
Ph: 703-803-2980
Fax: 703-803-3732
Internet: <http://www.smacna.org>
e-mail: info@smacna.org

SPRI (SPRI)

200 Reservoir St., Suite 309A
Needham, MA 02494
Ph: 781-444-0242
Fax: 781-444-6111
Internet: <http://www.spri.org>
e-mail: spri@spri.org

SOCIETY OF AUTOMOTIVE ENGINEERS INTERNATIONAL (SAE)

400 Commonwealth Dr.
Warrendale, PA 15096-0001
Ph: 724-776-4841
Fax: 724-776-5760
Internet: <http://www.sae.org>
e-mail: custsvc@sae.org

SOCIETY OF MOTION PICTURE & TELEVISION ENGINEERS (SMPTE)

595 West Hartsdale Avenue
WhitePlains, New York 10607

PH: 914-761-1100
FAX: 914-761-3115
Internet: <http://www.smpete.org>

SPRAY POLYURETHANE FOAM ALLIANCE (SPFA)

American Plastics Council
1300 Wilson Boulevard, Suite 800
Arlington Virginia 22209
PH: 800-523-6154
FX: 703-252-0664
E-mail: feedback@sprayfoam.org
Internet: <http://www.sprayfoam.org>

SOLAR RATING AND CERTIFICATION CORPORATION (SRCC)

c/o FSEC, 1679 Clearlake Road
Cocoa, FL 32922-5703
PH: 321-638-1537
FAX: 321-638-1010
Internet: <http://www.solar-rating.org>

SOUTHERN CYPRESS MANUFACTURERS ASSOCIATION (SCMA)

400 Penn Center Boulevard, Suite 530
Pittsburgh, PA 15235
Ph: 412-829-0770
Fax: 412-829-0844
Internet: <http://www.cypressinfo.org>

SOUTHERN PINE INSPECTION BUREAU (SPIB)

4709 Scenic Highway
Pensacola, FL 32504-9094
Ph: 850-434-2611
Fax: 850-433-5594
e-mail: spib@spib.org
Internet: <http://www.spib.org>

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION (CDT)

Publication Distribution Unit
1900 Royal Oaks Dr.
Sacramento, CA 95815
Ph: 916-445-3520 or 916-227-7000 (CA Transportation Lab)
Fax: 916-324-8997
Internet: <http://www.dot.ca.gov>

STATE OF MARYLAND CODE OF MARYLAND REGULATIONS (COMAR)

1700 Margaret Avenue
Annapolis, MD 21401
phone: 410-974-2486
fax: 410-974-2546
Internet:
<http://www.sos.state.md.us/sos/dsd/comar/html/comar.html>

STATE OF NORTH CAROLINA ADMINISTRATIVE CODE

Internet: <http://ncrules.state/nc.us>

STATE OF VIRGINIA ADMINISTRATIVE CODE (VAC)

Virginia Code Commission

General Assembly Building, 2nd Floor

910 Capitol Street

Richmond, Virginia 23219

Phone: 804-786-3591

Fax: 804-692-0625

Internet:

<http://legis.state.va.us/statutesandregulations/admincode.htm>

STATE OF CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

Plant Health and Pest Prevention Services

Pest Exclusion Branch/Nursery, Seed and Cotton Program

1220 N Street, Room A-372

Sacramento CA 95814

PH: 916-653-0435

Internet: <http://www.cdffa.ca.gov/phpps/nipm.htm>

STEEL DECK INSTITUTE (SDI)

P.O. Box 25

Fox River Grove, IL 60021-0025

Ph: 847-462-1930

Fax: 847-462-1940

Internet: <http://www.sdi.org>

e-mail: Steve@sdi.org

STEEL DOOR INSTITUTE (SDOI)

30200 Detroit Rd.

Cleveland, OH 44145-1967

Ph: 440-899-0010

Fax: 440-892-1404

Internet: <http://www.steeldoors.org>

STEEL JOIST INSTITUTE (SJI)

3127 Tenth Ave., North Ext.

Myrtle Beach, SC 29577-6760

Ph: 843-626-1995

Fax: 843-626-5565

Internet: <http://www.steeljoist.org>

STEEL TANK INSTITUTE (STI)

570 Oakwood Rd.

Lake Zurich, IL 60047

Ph: 847-438-8265

Fax: 847-438-8766

Internet: <http://www.steeltank.com>

STEEL WINDOW INSTITUTE (SWI)

1300 Sumner Ave.

Cleveland, OH 44115-2851
Ph: 216-241-7333
Fax: 216-241-0105
Internet: <http://www.steelwindows.com>

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY (TAPPI)

P.O. Box 105113
Atlanta, GA 30348-5113
PH: 800-322-8686
FAX: 770-446-6947
Internet: <http://www.tappi.org>

ASSOCIATION OF THE WALL AND CEILING INDUSTRIES - INTERNATIONAL
(AWCI)

803 West Broad Street
Falls Church, VA 22046
PH: 703-534-8300
FAX: 703-534-8307
Internet: <http://www.awci.org>

INSULATING GLASS MANUFACTURERS ALLIANCE (IGMA)

27 ave Goulburn Avenue
Ottawa, Ontario. CANADA
K1N 8C7
Phone: 613-233-1510
Fax: 613-233-1929
e-mail: info@igmaonline.org
Internet: <http://www.igmaonline.org>

THE SOCIETY FOR PROTECTIVE COATINGS (SSPC)

40 24th Street, 6th Floor
Pittsburgh, PA 15222-4656
Ph: 412-281-2331
Fax: 412-281-9992
Internet: <http://www.sspc.org>

TILE COUNCIL OF AMERICA (TCA)

100 Clemson Research Blvd
Anderson, SC 29625
Ph: 864-646-8453
FAX: 864-646-2821
Internet: <http://www.tileusa.com>
e-mail: literature@tileusa.com

TRUSS PLATE INSTITUTE (TPI)

583 D'Onofrio Dr., Suite 200
Madison, WI 53719
Ph: 608-833-5900
Fax: 608-833-4360
Internet: <http://www.tpinst.org>

TUBULAR EXCHANGER MANUFACTURERS ASSOCIATION (TEMA)
25 N. Broadway
Tarrytown, NY 10591
Ph: 914-332-0040
Fax: 914-332-1541
Internet: <http://www.tema.org>

TURFGRASS PRODUCERS INTERNATIONAL (TPI)
1855-A Hicks Road
Rolling Meadows, IL 60008
PH: 800-405-8873
FAX: 847-705-8347
Internet: <http://www.turfgrasssod.org>

UNDERWRITERS LABORATORIES (UL)
333 Pfingsten Rd.
Northbrook, IL 60062-2096
Ph: 847-272-8800
Fax: 847-272-8129
Internet: <http://www.ul.com/>
e-mail: northbrook@us.ul.com

UNI-BELL PVC PIPE ASSOCIATION (UBPPA)
2655 Villa Creek Dr., Suite 155
Dallas, TX 75234
Ph: 214-243-3902
Fax: 214-243-3907
Internet: <http://www.uni-bell.org>
e-mail: info@uni-bell.org

UNIVERSITY OF CALIFORNIA DIVISION OF AGRICULTURE AND NATURAL
RESOURCES (UCDANR)
FRANKLIN BUILDING
1111 Franklin St., 6th floor
Oakland, CA 94607-5200
Internet: <http://http://www.ucanr.org>

U.S. AIR FORCE (USAF)
Air Force Publishing Distribution Center
Ph: 410-687-3330
E-mail: afpdc-service@pentagon.af.mil
Internet: <http://www.e-publishing.af.mil/>

U.S. ARMY (DA)

U.S. Army Publications Agency
Internet: <http://www.usapa.army.mil/>
AOK: 4/02
LOK: 7/02

U.S. ARMY CORPS OF ENGINEERS (USACE)

Order CRD-C DOCUMENTS from:
U.S. Army Engineer Waterways Experiment Station

ATTN: Technical Report Distribution Section, Services
Branch, TIC
3909 Halls Ferry Rd.
Vicksburg, MS 39180-6199
Ph: 601-634-2664
Fax: 601-634-2388
Internet: <http://www.wes.army.mil/SL/MTC/handbook/handbook.htm>

Order Other Documents from:
USACE Publications Depot
Attn: CEIM-SP-D
2803 52nd Avenue
Hyattsville, MD 20781-1102
Ph: 301-394-0081
Fax: 301-394-0084
Internet: <http://www.usace.army.mil/publications>
or <http://www.hnd.usace.army.mil/techinfo/index.htm>

U. S. ARMY EDGEWOOD RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER
(EA)

Aberdeen Proving Ground, MD
Internet: Unknown

U.S. ARMY ENVIRONMENTAL CENTER (AEC)

5179 Hoadley Road
Aberdeen Proving Ground, MD 21010-5401
Internet: <http://aec.army.mil>
Order from:
National Technical Information Services (NTIS)
5285 Port Royal Rd.
Springfield, VA 22161
Ph: 703-605-6000
Fax: 703-605-6900
Internet: <http://www.ntis.gov>

U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY (USAEHA)

Now: U.S. Army Center for Health Promotion and Preventive
Medicine (USACHPPM)
5158 Blackhawk Road
Aberdeen Proving Ground
MD 21010-5403
PH: 800-222-9698; website
Internet: <http://chppm-www.apgea.army.mil>

U.S. BUREAU OF RECLAMATION (BOR)

Denver Federal Center
P.O. Box 25007
Denver, CO 80225
Ph: 303-445-2080

Internet: <http://www.usbr.gov>
Order from:
National Technical Information
Services (NTIS)
5285 Port Royal Rd.
Springfield, VA 22161
Ph: 703-605-6000
Fax: 703-605-6900
Internet: <http://www.ntis.gov>

U.S. DEFENSE COMMUNICATIONS AGENCY (DCA)

Now: Information Systems Agency (DISA)
Washington, D.C. 20305-2000
Telephone:
FAX:
Internet: Not found

U.S. DEFENSE INTELLIGENCE AGENCY (DIA)

Defense Intelligence Analysis Center (DIAC)
MacDill Boulevard and Luke Avenue
Bolling AFB, MD
Internet: <http://www.dia.mil>

U.S. DEFENSE LOGISTICS AGENCY (DLA)

Andrew T. McNamara Building
8725 John J. Kingman Road
Fort Belvoir, VA 22060
Internet: <http://www.dla.mil>

U.S. DEPARTMENT OF AGRICULTURE (USDA)

Order AMS Publications from:
AGRICULTURAL MARKETING SERVICE (AMS)
Seed Regulatory and Testing Branch
USDA, AMS, LS Div.
Room 209, Bldg. 306, BARC-East
Beltsville, MD 20705-2325
Ph: 301-504-9430
Fax: 301-504-8098
Internet: <http://www.ams.usda.gov/lsg/seed.htm>
e-mail: jeri.irwin@usda.gov

Order Other Publications from:
U.S. Department of Agriculture
14th and Independence Ave., SW, Room 4028-S
Washington, DC 20250
Ph: 202-720-2791
Fax: 202-720-2166
Internet: <http://www.usda.gov>

U.S. DEPARTMENT OF COMMERCE (DOC)

1401 Constitution Avenue, NW
Washington, DC 20230
Internet: <http://www.commerce.gov/>

Order Publications From:
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Ph: 703-605-6000
Fax: 703-605-6900
Internet: <http://www.ntis.gov>

U.S. DEPARTMENT OF DEFENSE (DOD)

Order DOD Documents from:
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Ph: 703-605-6000
FAX: 703-605-6900
Internet: <http://www.ntis.gov>

Order Military Specifications, Standards and Related Publications
from:

Department of Defense Single Stock Point for (DODSSP)
Defense Automation and Production Service (DAPS)
Bldg 4D
700 Robbins AV
Philadelphia, PA 19111-5094
Ph: 215-697-2179
Fax: 215-697-1462
Internet: <http://www.dodssp.daps.mil>

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

Order from:
HUD User
P.O. Box 6091
Rockville, MD 20849
Ph: 800-245-2691
Fax: 301-519-5767
Internet: <http://www.huduser.org>
e-mail: Huduser@aspensys.com

U.S. DEPARTMENT OF STATE (SD)

2201 C Street, NW
Washington, DC 20520
Ph: 202-647-4000
Internet: <http://www.state.gov>

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

400 7th Street, SW
Washington, DC 20590

PH: 202-366-4000
Internet: <http://www.dot.gov>

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460
Ph: 202-260-2090
FAX: 202-260-6257
Internet: <http://www.epa.gov>

NOTE --- Some documents are available only from:
National Technical Information Services (NTIS)
5285 Port Royal Rd.
Springfield, VA 22161
Ph: 703-605-6000
Fax: 703-605-6900
Internet: <http://www.ntis.gov>

U.S. FEDERAL AVIATION ADMINISTRATION (FAA)
Order for sale documents from:
Superintendent of Documents
P.O. Box 371954
Pittsburgh, PA 15250-7954
PH: 202-512-1800 (order desk)
Internet: <http://www.gpo.gov>

Order free documents from:
Federal Aviation Administration
Dept. of Transportation
Ardmore East Business Center
33410 75th Avenue
Landover, MD 20785
Ph:
FAX: 301-386-5394

Internet: <http://www.faa.gov>

U.S. FEDERAL COMMUNICATIONS COMMISSION (FCC)
445 12th Street SW
Washington, DC 20554
Phone: 888-CALL-FCC
Fax: 202-418-0232
Internet: <http://www.fcc.gov>
E-mail: fccinfo@fcc.gov

U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
500 C Street, SW
Washington, D.C. 20472
Phone: 202-566-1600
Internet: <http://www.fema.gov>

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Office of Highway Safety (HHS-31)
400 Seventh St., SW
Washington, DC 20590-0001
Ph: 202-366-0411
Fax: 202-366-2249
Internet: <http://www.fhwa.dot.gov>
Order from:

Superintendent of Documents
U. S. Government Printing Office
732 North Capitol Street, NW
Mailstop: SDE
Washington, DC 20401
Ph: 866-512-1800 or 202-512-1800
Fax: 202-512-2250
Internet: <http://www.gpo.gov>

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

General Services Administration
1800 F Street, NW
Washington, DC 20405
PH: 202-501-0705

Order from:
General Services Administration
Federal Supply Service Bureau
1941 Jefferson Davis Highway
Arlington, VA 22202
PH: 703-605-5400
Internet: <http://www.fss.gsa.gov/pub/fed-specs.cfm>

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)
700 Pennsylvania Avenue, N.W.
Washington, D.C. 20408
Phone: 866-325-7208
Internet: <http://www.archives.gov>

Order documents from:
Superintendent of Documents
U.S. Government Printing Office
732 North Capitol Street, NW
Washington, DC 20401
Mailstop: SDE
Ph: 866-512-1800 or 202-512-1800
Fax: 202-512-2250
Internet: <http://www.gpo.gov>
E-mail: gpoaccess@gpo.gov

U.S. NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC)
1510 Gilbert St.
Norfolk, VA 23511-2699
Ph: 757-322-4200
Fax: 757-322-4416

Internet: http://www.efdlant.navfac.navy.mil/LANTOPS_15

U.S. NAVAL FACILITIES ENGINEERING SERVICE CENTER (NFESC)
1100 23rd Avenue
Port Hueneme, CA 93043-4370
Ph: 805-982-4980
Internet: <http://www.nfesc.navy.mil>

WATER ENVIRONMENT FEDERATION (WEF)
601 Wythe St.
Alexandria, VA 22314-1994
Ph: 703-684-2452
Fax: 703-684-2492
Internet: <http://www.wef.org>

WATER QUALITY ASSOCIATION (WQA)
4151 Naperville Rd.
Lisle, IL 60532
Ph: 630-505-0160
Fax: 630-505-9637
Internet: <http://www.wqa.org>
e-mail: info@mail.wqa.org

WEST COAST LUMBER INSPECTION BUREAU (WCLIB)
P.O. Box 23145
Portland, OR 97281
Ph: 503-639-0651
Fax: 503-684-8928
Internet: <http://www.wclib.org>
e-mail: info@wclib.org

WESTERN WOOD PRESERVERS INSTITUTE (WWPI)
7017 N.E. Highway 99 # 108
Vancouver, WA 98665
Ph: 360-693-9958
Fax: 360-693-9967
Internet: <http://www.wwpinstitute.org>
e-mail: info@wwpinstitute.org

WESTERN WOOD PRODUCTS ASSOCIATION (WWPA)
Yeon Bldg.
522 SW 5th Ave.
Suite 500
Portland, OR 97204-2122
Ph: 503-224-3930
Fax: 503-224-3934
Internet: <http://www.wwpa.org>
e-mail: info@wwpa.org

WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)
1400 East Touhy Ave., Suite 470
Des Plaines, IL 60018
Ph: 847-299-5200 or 800-223-2301
Fax: 708-299-1286

Internet: <http://www.wdma.com>
e-mail: admin@wdma.com

WOOD MOULDING AND MILLWORK PRODUCERS ASSOCIATION (WMPMA)
507 First Street
Woodland, CA 95695
Ph: 530-661-9591 or 800-550-7889
Fax: 530-661-9586
Internet: <http://www.wmpma.com>

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01330

SUBMITTAL PROCEDURES

09/97

PART 1 GENERAL

- 1.1 SUBMITTAL IDENTIFICATION
- 1.2 SUBMITTAL CLASSIFICATION
 - 1.2.1 Government Approved
 - 1.2.2 Information Only
- 1.3 APPROVED SUBMITTALS
- 1.4 DISAPPROVED SUBMITTALS
- 1.5 WITHHOLDING OF PAYMENT

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

- 3.1 GENERAL
- 3.2 SUBMITTAL REGISTER (ENG FORM 4288)
- 3.3 SCHEDULING
- 3.4 TRANSMITTAL FORM (ENG FORM 4025)
- 3.5 SUBMITTAL PROCEDURE
 - 3.5.1 Procedures
 - 3.5.2 Deviations
- 3.6 CONTROL OF SUBMITTALS
- 3.7 GOVERNMENT APPROVED SUBMITTALS
- 3.8 INFORMATION ONLY SUBMITTALS
- 3.9 STAMPS

-- End of Section Table of Contents --

CEGS-01330/S (September 1997)

SECTION 01330

SUBMITTAL PROCEDURES

09/97

PART 1 GENERAL

1.1 SUBMITTAL IDENTIFICATION

Submittals required are identified by SD numbers as follows:

SD-01 Data

SD-04 Drawings

SD-06 Instructions

SD-07 Schedules

SD-08 Statements

SD-09 Reports

SD-13 Certificates

SD-14 Samples

SD-18 Records

SD-19 Operation and Maintenance Manuals

1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.2.1 Government Approved

Governmental approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.2.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.3 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the CQC requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.4 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

1.5 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) representative and each item shall be stamped, signed, and dated by the CQC representative indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

3.2 SUBMITTAL REGISTER (ENG FORM 4288)

At the end of this section is one set of ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. The Contractor will also be given the submittal register as a diskette containing the computerized ENG Form 4288 and instructions on the use of the diskette. Columns "d" through "r" have been completed by the Government; the Contractor shall complete columns "a" and "s" through "u" and submit the forms (hard copy plus associated electronic file) to the Contracting Officer for approval within 30 calendar days after Notice to Proceed. The Contractor shall keep this diskette up-to-date and shall submit it to the Government together with the monthly payment request. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the contract. The submittal register and the progress schedules shall be coordinated.

3.3 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals. An additional 10 calendar days shall be allowed and shown on the register for review and approval of submittals for food service equipment and refrigeration and HVAC control systems.

3.4 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) included in Attachment 1 to Section 00800 shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor.

This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

3.5 SUBMITTAL PROCEDURE

Submittals shall be made as follows:

3.5.1 Procedures

The Contractor shall be responsible for the scheduling and control of all submittals. The Contractor is responsible for confirming that the submittal register includes all submittals required by the contract documents.

In addition to those items listed on ENG Form 4288, the Contractor will furnish submittals for any deviation from the plans or specifications. The

scheduled need dates must be recorded on the document for each item for control purposes and critical items must be tied to the contractor's approved schedule where applicable.

The Contractor will submit to the Contracting Officer for approval a minimum of five copies of all GA/D or GA/F level submittals. Three copies of all FIO level submittals will be provided. The number of copies of submittals specified in this portion of the contract shall be complied with in lieu of four copies as specified by FAR 52.236-21.

For those contracts requiring Network Analysis System (NAS), the Contractor will schedule on the NAS critical items of equipment submittals and procurement activities which will, or have the potential to, significantly impact project completion. The inclusion or exclusion of critical items shall be subject to the approval of the Contracting Officer.

Where ENG Form 4025 must be submitted prior to approval of the Construction Progress Schedule, the Contractor shall submit an initial annotated ENG Form 4288 upon which dates for submittal, approval and delivery of procurement items shall be included for the first 60 days of the work. Upon approval of the Construction Progress Schedule, or no later than 60 days after Notice to Proceed, the Contractor shall submit final annotated copies of ENG Form 4288. Dates shall be coordinated with the approved Construction Progress Schedule to logically interface with the sequence of construction. Critical item numbers will be shown on the listing if NAS is required.

Furnishing the schedule shall not be interpreted as relieving the Contractor of his obligation to comply with all the specification requirements for the items on the schedule. Contractor's Quality Control representative shall review the listing at least every 30 days and take appropriate action to maintain an effective system. The Contractor shall furnish a list each 30 days of all submittals on which either Government's or Contractor's action is past due. He shall also furnish revised due dates in those cases when the original submittal schedule is no longer realistic. This monthly list of delayed items shall also be annotated by the Contractor to show what corrective action he is taking with regard to slippages in submittal schedule which are attributable to actions by him, his subcontractors, or suppliers.

The Contractor shall provide a complete updated submittal register indicating the current status of all submittals when requested by the Contracting Officer in order to assure himself the schedule is being maintained.

The Contractor shall certify that each submittal is correct and in strict conformance with the contract drawings and specifications. All submittals not subject to the approval of the Contracting Officer will be submitted for information purposes only.

No Corps of Engineers action will be required prior to incorporating these items into the work, but the submittal shall be furnished to the Area/Resident Engineer not less than 2 weeks prior to procurement of Contractor certified material, equipment, etc.

These Contractor approved submittals will be used to verify that material received and used in the job is the same as that described and approved and will be used as record copies. All samples of materials submitted as required by these specifications shall be properly identified and labeled for ready identification, and upon being certified by the Contractor and reviewed by the Contracting Officer, shall be stored at the site of the work for job site use until all work has been completed and accepted by the Contracting Officer. Delegation of this approval authority to Contractor Quality Control does not relieve the Contractor from the obligation to conform to any contract requirement and will not prevent the Contracting Officer from requiring removal and replacement of construction not in contract conformance; nor does it relieve the Contractor from the requirement to furnish "samples" for testing by the Government Laboratory or check testing by the Government in those instances where the technical specifications so prescribe.

Contractor certified drawings will be subject to quality assurance review by the Government at any time during the duration of the contract. No adjustment for time or money will be allowed for corrections required as a result of noncompliance with plans and specifications.

Submittals Requiring Government Approval (GA/D Level or GA/F Level). Where the review authority is designated to the Government, the Contractor is required to sign the certification on ENG Form 4025 in the box beside the remarks block in Section I. The Government will code the items in block h and sign the approval action block in Section II as the approving authority.

Operating and Maintenance Instructions. Six complete sets of instructions containing the manufacturer's operating and maintenance instructions for each piece of equipment shall be furnished. Each set shall be permanently bound and shall have a hard cover. One complete set shall be furnished at the time test procedures are submitted. Remaining sets shall be furnished before the contract is completed. The following identification shall be inscribed on the covers: The words "OPERATING AND MAINTENANCE INSTRUCTIONS," name and location of the facility, name of the Contractor, and contract number. Fly sheets shall be placed before instructions covering each subject. Instruction sheets shall be approximately 8-1/2 by 11 inches, with large sheets of drawings folded in. Instructions shall include but are not limited to:

- (1) System layout showing piping, valves and controls;
- (2) Approved wiring and control diagrams;
- (3) A control sequence describing startup, operation and shutdown;
- (4) Operating and maintenance instructions for each piece of equipment, including lubrication instructions and troubleshooting guide; and
- (5) Manufacturer's bulletins, cuts and descriptive data; parts lists and recommended parts.

3.5.2 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

3.6 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

3.7 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Four copies of the submittal will be retained by the Contracting Officer and one copy of the submittal will be returned to the Contractor.

3.8 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

3.9 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

<p>CONTRACTOR</p> <p>(Firm Name)</p> <p>_____ Approved</p> <p>_____ Approved with corrections as noted on submittal data and/or attached sheets(s).</p> <p>SIGNATURE: _____</p> <p>TITLE: _____</p> <p>DATE: _____</p>
--

-- End of Section --

CONTRACT NO.

(E9415-1-10)

CONTRACTION

SPECIFICATION SECTION

0:7111

[illegible]

07220

07220

[illegible]

CONTRACT NO.

CONTRACTOR

SPECIFICATION SECTION

0.7311

REPAIR/REPLACE ROOFS POST WIND, FORT BRAGG, N.C.

[illegible]

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION

CONTRACTOR

SPECIFICATION SECTION

(ER 415-1-10)

REPAIR/REPLACE ROOFS, ROOFWIDE, FORT BRAGG, N.C.

07415

TRANS- MITTAL NO.	ITEM NO	SPECIFICATION PARAGRAPH NUMBER	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL										CLASSI- FICATION		REVIEWER	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS		
				DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	INFORMATION ONLY	GOVERNMENT APPROVED	SUBMIT		APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERN- MENT	CODE	DATE				
	1	1.4	DETAILS	X	X																						
	2	1.4a	ACCESSORIES	X								X															
	3	1.4.b	COVERING ROOF	X	X			X				X															
	4	1.4.c	FASTENERS	X	X							X															
	5	1.4.d	INSULATION	X	X							X															
	6	1.4.E	FASTENERS & COMPONENTS	X	X							X															
	7	1.4.F	SEALANT	X	X							X															

CONFIDENTIAL

SPECIFICATION SECTION

007600

[illegible]

REF 415-1-10)

CONTENTS

CONTRACT NO.

SPECIFICATION SECTION

07920

[illegible]

[illegible]

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01451A

CONTRACTOR QUALITY CONTROL

05/02

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 PAYMENT

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

- 3.1 GENERAL REQUIREMENTS
- 3.2 QUALITY CONTROL PLAN
 - 3.2.1 Content of the CQC Plan
 - 3.2.2 Additional Requirements for Design Quality Control (DQC) Plan
 - 3.2.3 Acceptance of Plan
 - 3.2.4 Notification of Changes
- 3.3 COORDINATION MEETING
- 3.4 QUALITY CONTROL ORGANIZATION
 - 3.4.1 Personnel Requirements
 - 3.4.2 CQC System Manager
 - 3.4.3 CQC Personnel
 - 3.4.4 Additional Requirement
 - 3.4.5 Organizational Changes
- 3.5 SUBMITTALS AND DELIVERABLES
- 3.6 CONTROL
 - 3.6.1 Preparatory Phase
 - 3.6.2 Initial Phase
 - 3.6.3 Follow-up Phase
 - 3.6.4 Additional Preparatory and Initial Phases
- 3.7 TESTS
 - 3.7.1 Testing Procedure
 - 3.7.2 Testing Laboratories
 - 3.7.2.1 Capability Check
 - 3.7.2.2 Capability Recheck
 - 3.7.3 Onsite Laboratory
 - 3.7.4 Furnishing or Transportation of Samples for Testing
- 3.8 COMPLETION INSPECTION
 - 3.8.1 Punch-Out Inspection
 - 3.8.2 Pre-Final Inspection
 - 3.8.3 Final Acceptance Inspection
- 3.9 DOCUMENTATION
- 3.10 SAMPLE FORMS
- 3.11 NOTIFICATION OF NONCOMPLIANCE

-- End of Section Table of Contents --

UFGS-01451A (May 2002)

SECTION 01451A

CONTRACTOR QUALITY CONTROL
05/02

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(2001) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
-------------	---

ASTM E 329	(2000b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
------------	---

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction design and construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities

at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2 QUALITY CONTROL PLAN

The Contractor shall furnish for review by the Government, not later than 5 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. ConstructionDesign and construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all design and constructionconstruction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents subcontractors, designers of record, consultants, architect/engineers (AE), fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agentssubcontractors, designers of record, consultants, architect engineers (AE), offsite fabricators, suppliers, and purchasing agents. These

procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.

- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities must be approved by the Contracting Officer.)
- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking construction design and construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- h. Reporting procedures, including proposed reporting formats.
- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.2 Additional Requirements for Design Quality Control (DQC) Plan

The following additional requirements apply to the Design Quality Control (DQC) plan:

(1) The Contractor's QCP Plan shall provide and maintain a Design Quality Control (DQC) Plan as an effective quality control program which will assure that all services required by this design-build contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, all documents shall be technically reviewed by competent, independent reviewers identified in the DQC Plan. The same element that produced the product shall not perform the independent technical review (ITR). In addition, the DQC Plan shall incorporate the Lessons Learned Databases provided by the Government. The Contractor shall correct errors and deficiencies in the design documents prior to submitting them to the Government.

(2) The Contractor shall include the design schedule in the master project schedule, showing the sequence of events involved in carrying out the project design tasks within the specific contract period. This should be at a detailed level of scheduling

sufficient to identify all major design tasks, including those that control the flow of work. The schedule shall include review and correction periods associated with each item. This should be a forward planning as well as a project monitoring tool. The schedule reflects calendar days and not dates for each activity. If the schedule is changed, the Contractor shall submit a revised schedule reflecting the change within 7 calendar days. The Contractor shall include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. These completed checklists shall be submitted at each design phase as part of the project documentation. Example checklists can be found in ER 1110-1-12.

(3) The DQC Plan shall be implemented by an Design Quality Control Manager who has the responsibility of being cognizant of and assuring that all documents on the project have been coordinated. This individual shall be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect. The Contractor shall notify the Contracting Officer, in writing, of the name of the individual, and the name of an alternate person assigned to the position.

The Contracting Officer will notify the Contractor in writing of the acceptance of the DQC Plan. After acceptance, any changes proposed by the Contractor are subject to the acceptance of the Contracting Officer.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction design and construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction design and construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, Postaward Conference, before start of design or construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 7 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, design activities, control activities, testing, administration of the

system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance.

Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager, a Design Quality Manager, and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, show drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 5 years' construction experience on construction similar to this contract or a construction person with a minimum of 10 years' experience in related work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned as System Manager but may have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 CQC Personnel

A certified industrial hygienist shall be on the job site during all asbestos and lead based paint abatement. This includes preparatory as well

as followup phases.

3.4.4 Additional Requirement

In addition to the above experience and education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". This course is offered on a quarterly basis within the Savannah District boundaries. CQC System Managers who have not successfully completed this course must attend the next available training session. Failure to successfully complete this training within the next available training date will be grounds for removal as CQC System Manager. There is currently a nominal fee to cover the cost of the training materials for Contractors who have current contracts with the Savannah District.

3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements. When Section 15950A HEATING, VENTILATING AND AIR CONDITIONING (HVAC) CONTROL SYSTEMS; 15951A DIRECT DIGITAL CONTROL FOR HVAC; 15990A TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS; or 15995A COMMISSIONING OF HVAC SYSTEMS are included in the contract, the submittals required by those sections shall be coordinated with Section 01330 SUBMITTAL PROCEDURES to ensure adequate time is allowed for each type of submittal required.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of the construction work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the

Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.

- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the following

address:

US Army Engineer District, Savannah
Environmental & Materials Unit
200 North Cobb Parkway
Building 400, Suite 404
Marietta, GA 30062

Coordination for each specific test will be made through the Area Office.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the Special Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected.

Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date

scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.
- g. Offsite surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and

submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 SAMPLE FORMS

Sample forms are included in Attachment 1 to Section 00800.

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES

02/97

PART 1 GENERAL

- 1.1 GENERAL REQUIREMENTS
 - 1.1.1 Site Plan
 - 1.1.2 Identification of Employees
 - 1.1.3 Employee Parking
- 1.2 AVAILABILITY AND USE OF UTILITY SERVICES (FORT BRAGG)
 - 1.2.1 Payment for Utility Services
 - 1.2.2 Meters and Temporary Connections
 - 1.2.3 Use of Permanent Building Utility Connections
 - 1.2.4 Initial Meter Readings
 - 1.2.5 Final Meter Reading
 - 1.2.6 Requirement for Backflow Prevention on Temporary/Permanent Potable Water Connections
 - 1.2.7 Utilities Charge Rates
- 1.3 BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN
 - 1.3.1 Bulletin Board
 - 1.3.2 Project Signs
- 1.4 PROTECTION AND MAINTENANCE OF TRAFFIC
 - 1.4.1 Haul Roads
 - 1.4.2 Barricades
- 1.5 CONTRACTOR'S TEMPORARY FACILITIES
 - 1.5.1 Administrative Field Offices
 - 1.5.2 Storage Area
 - 1.5.3 Supplemental Storage Area
 - 1.5.4 Appearance of Trailers
 - 1.5.5 Maintenance of Storage Area
 - 1.5.6 New Building
 - 1.5.7 Security Provisions
- 1.6 PLANT COMMUNICATION
- 1.7 TEMPORARY PROJECT SAFETY FENCING
- 1.8 PARTNERING
- 1.9 INSTALLATION REGULATIONS
- 1.10 TESTING LABORATORIES
 - 1.10.1 Approved Testing Laboratories
 - 1.10.2 Other Laboratory Services
- 1.11 CONSTRUCTION SCHEDULE RESTRAINTS - FORT BRAGG, NC
 - 1.11.1 Occupancy
 - 1.11.2 Protection
 - 1.11.3 Phasing and Sequence
 - 1.11.3.1 General
 - 1.11.3.2 Special Work Restraints
 - 1.11.4 Time of Performance
 - 1.11.4.1 Access to Buildings
 - 1.11.4.2 Work Requiring Outages
 - 1.11.5 Contractor Vehicle/Equipment Access to Fort Bragg
 - 1.11.6 Outages
 - 1.11.7 Continuity

- 1.11.8 Permits
 - 1.11.8.1 Excavation Permits
 - 1.11.8.2 Disposal Permits
 - 1.11.8.3 Borrow Permits
- 1.11.9 Road and/or Railroad Closures
- 1.11.10 Landfills
 - 1.11.10.1 Land Clearing and Inert Debris (LCID) Landfill
 - 1.11.10.2 Demolition Landfill
 - 1.11.10.3 Transfer Station
 - 1.11.10.4 Disposal of Asbestos
 - 1.11.10.5 Municipal Solid Waste (MSW)
 - 1.11.10.6 Trash Containers
 - 1.11.10.7 Construction Debris Leaving Site
- 1.11.11 Landforms
- 1.11.12 Topsoil
- 1.11.13 Unforeseen Site Conditions
- 1.11.14 Replacement
- 1.11.15 Mowing
- 1.11.16 Communications Systems
- 1.12 DELETED
- 1.13 CLEANUP
- 1.14 RESTORATION OF STORAGE AREA

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section Table of Contents --

CEGS-01500/S (February 1997)

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES
02/97

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

1.1.1 Site Plan

The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

1.1.2 Identification of Employees

The Contractor shall be responsible for furnishing to each employee, and for requiring each employee engaged on the work to display, identification as approved and directed by the Contracting Officer. Prescribed identification shall immediately be delivered to the Contracting Officer for cancellation upon release of any employee. When required, the Contractor shall obtain and provide fingerprints of persons employed on the project. Contractor and subcontractor personnel shall wear identifying markings on hard hats clearly identifying the company for whom the employee works.

1.1.3 Employee Parking

Contractor employees shall park privately owned vehicles in an area designated by the Contracting Officer. This area will be within reasonable walking distance of the construction site. Contractor employee parking shall not interfere with existing and established parking requirements of the military installation.

1.2 AVAILABILITY AND USE OF UTILITY SERVICES (FORT BRAGG)

1.2.1 Payment for Utility Services

The Government will make all reasonably required utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to and paid for by the Contractor at the prevailing rates. The rates listed below are current as of September 2002 and are subject to change. The Contractor shall carefully conserve all utilities furnished.

1.2.2 Meters and Temporary Connections

The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall provide and maintain necessary temporary connections, distribution lines, and meters required to measure the amount

of each utility used for the purpose of determining charges. The Contractor shall notify the Contracting Officer's Representative, in writing, no less than 10 working days before the temporary connection is made. The Contracting Officers Representative will then provide the contractor with the name and phone number of the utility provider. The contractor will be responsible for contacting the utility provider and making arrangements for connections and billing. For temporary electrical connections the Government or applicable utility provider will provide the meter (meter base provided by contractor) and make the final hot connection after inspection and approval of the Contractor's temporary wiring installation. The Contractor shall not make the final electrical connection. For temporary water and sewer connections the contractor will provide the meter and after inspection/approval by the Contracting Officer's Representative make the final connection at the contractor's expense.

1.2.3 Use of Permanent Building Utility Connections

Utilities consumed by the contractor from permanent building utility connections shall also be metered and paid for by the contractor. When the permanent system is activated the initial meter reading shall be recorded and reported as specified below. On building renovation projects the initial meter reading shall be recorded when the contractor is given possession of the building to perform the work. The Contractor shall pay for utilities consumed through the permanent building connection until the work has been completed or the Government has occupied the facility, whichever occurs first.

1.2.4 Initial Meter Readings

Upon installation of the meter, the initial reading shall be recorded (in the presence of the Contracting Officer's Representative) and forwarded to the point of contact for utility service with a copy to the Contracting Officer's Representative.

1.2.5 Final Meter Reading

Before completion of the work and final acceptance of the work by the Government, the Contractor shall notify the Contracting Officer and the applicable utility provider, in writing, 10 working days before termination is desired. The Government or applicable utility provider will take a final meter reading. Electric service will be disconnected by the provider. Water and sewer connections will be disconnected by the contractor, at his expenses and by a method approved by the Contracting Officer's Representative. The Contractor shall then remove all the temporary distribution lines, meters, meter bases, and associated paraphernalia. The Contractor shall pay all outstanding utility bills before final acceptance of the work by the Government.

1.2.6 Requirement for Backflow Prevention on Temporary/Permanent Potable Water Connections

The contractor shall install a backflow prevention device on all connections to the potable water system. The backflow prevention device shall be a reduced pressure or double check type, meeting all the State code requirements for backflow preventers on potable water. If the contractor requests the use of a fire hydrant and receives approval from the Contracting Officer's Representative a backflow prevention device and meter shall be installed prior to each use.

1.2.7 Utilities Charge Rates

Water ----- \$1.70 per 1,000 gallons
Electricity ----- \$0.0657 per KW hour
Sewer ----- \$10.00/month for each connected trailer up to single wide size. The rate for larger trailers will be determined by the utility provider, however; this rate will not exceed \$20.00/month per trailer.

1.3 BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.3.1 Bulletin Board

Immediately upon beginning of work, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Contracting Officer. The bulletin board shall be located at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer. Legible copies of the aforementioned data shall be displayed until work is completed. Upon completion of work the bulletin board shall be removed by and remain the property of the Contractor.

1.3.2 Project Signs

The Contractor shall furnish and install a project sign at the location selected by the Contracting Officer. The project sign shall be painted on 1/2 inch thick exterior grade plywood. The sign layout shall be in accordance with the graphic format shown in Attachment 1 to Section 00800.

1.4 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

All commercial vehicles larger than a pickup to include panel vans with no side or rear windows are to enter Fort Bragg, NC, through one of two locations (Knox Street or Longstreet Road) where the vehicles will be "scanned."

1.4.1 Haul Roads

The Contractor will be required to use the haul routes shown on the plans unless otherwise permitted in writing by the Contracting Officer. When

haul routes are not designated on the plans, the Contractor must obtain approval of the Contracting Officer of haul routes he intends to use. The Contractor shall maintain the haul routes and shall keep the dust problem under control by wetting the surface as needed. Sweeping and cleaning of pavements will be done as necessary to remove spillage resulting from the hauling operations. After all hauling has been completed, the Contractor shall restore the earth areas used for the haul routes to original condition by final grading, shaping, compacting, and grassing, and shall clean and sweep all paved areas as required. Any pavement damaged as a result of hauling operations under this contract for both the earth and other materials shall be promptly repaired by the Contractor, as approved by the Contracting Officer. The cost of maintenance and repair of the haul routes, as mentioned above, shall be considered as a subsidiary obligation of the Contractor. The axle load of earth hauling equipment operating on paved streets shall not exceed 18,000 pounds.

1.4.2 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.5 CONTRACTOR'S TEMPORARY FACILITIES

1.5.1 Administrative Field Offices

The Contractor shall provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

1.5.2 Storage Area

The Contractor shall construct a temporary 6 foot high chain link fence around trailers and materials. The fence shall include plastic strip inserts, colored brown, so that visibility through the fence is obstructed.

Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Trailers, materials, or equipment shall not be placed or stored outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Contracting Officer away from the vicinity of the construction site but within the military boundaries. Trailers, equipment, or materials shall not be open to public view with the exception of those items which are in support of ongoing work on any given day. Materials shall not be stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment, shall be parked within the fenced area at the end of each work day.

1.5.3 Supplemental Storage Area

Upon Contractor's request, the Contracting Officer will designate another or supplemental area for the Contractor's use and storage of trailers, equipment, and materials. This area may not be in close proximity of the construction site but shall be within the military boundaries. Fencing of

materials or equipment will not be required at this site; however, the Contractor shall be responsible for cleanliness and orderliness of the area used and for the security of any material or equipment stored in this area. Utilities will not be provided to this area by the Government.

1.5.4 Appearance of Trailers

Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on the military property.

1.5.5 Maintenance of Storage Area

Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas which are not established roadways, such areas shall be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways; gravel gradation shall be at the Contractor's discretion. Grass located within the boundaries of the construction site shall be mowed for the duration of the project. Grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers shall be edged or trimmed neatly.

1.5.6 New Building

In the event a new building is constructed for the temporary project field office, it shall be a minimum 12 feet in width, 16 feet in length and have a minimum of 7 feet headroom. It shall be equipped with approved electrical wiring, at least one double convenience outlet and the required switches and fuses to provide 110-120 volt power. It shall be provided with a work table with stool, desk with chair, two additional chairs, and one legal size file cabinet that can be locked. The building shall be waterproof, shall be supplied with heater, shall have a minimum of two doors, electric lights, a telephone, a battery operated smoke detector alarm, a sufficient number of adjustable windows for adequate light and ventilation, and a supply of approved drinking water. Approved sanitary facilities shall be furnished. The windows and doors shall be screened and the doors provided with dead bolt type locking devices or a padlock and heavy duty hasp bolted to the door. Door hinge pins shall be non-removable. The windows shall be arranged to open and to be securely fastened from the inside. Glass panels in windows shall be protected by bars or heavy mesh screens to prevent easy access to the building through these panels. In warm weather, air conditioning capable of maintaining the office at 50 percent relative humidity and a room temperature 20 degrees F below the outside temperature when the outside temperature is 95 degrees F, shall be furnished. Any new building erected for a temporary field office shall be maintained by the Contractor during the life of the contract and upon completion and acceptance of the work shall become the property of the Contractor and shall be removed from the site. All charges for telephone service for the temporary field office shall be borne by the Contractor, including long distance charges up to a maximum of \$75.00 per month.

1.5.7 Security Provisions

Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security

of its own equipment; in addition, the Contractor shall notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

1.6 PLANT COMMUNICATION

Whenever the Contractor has the individual elements of its plant so located that operation by normal voice between these elements is not satisfactory, the Contractor shall install a satisfactory means of communication, such as telephone or other suitable devices. The devices shall be made available for use by Government personnel.

1.7 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, the Contractor shall furnish and erect temporary project safety fencing at the work site. The safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 42 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers, constructed at the approved location. The safety fencing shall be maintained by the Contractor during the life of the contract and, upon completion and acceptance of the work, shall become the property of the Contractor and shall be removed from the work site.

1.8 PARTNERING

Following contract award, the Government intends to propose a voluntary partnering relationship with the Contractor. This partnering relationship will attempt to draw on strengths of each organization to facilitate communications and minimize delays to achieve a quality product, within budget, and on schedule. Participation in such partnering activities may include attendance at coordination meetings and cooperation in other efforts to promote the partnering relationship. The Government and the Contractor will each bear their own costs for participation in the partnering relationship, with no change in the contract price. Participation will not result in any change in the terms or price of the contract.

1.9 INSTALLATION REGULATIONS

The employees of the Contractor will be required to abide by all installation regulations as published by the Commanding Officer. A copy of these regulations can be obtained from the Area/Resident Engineer at the installation. All costs in connection therewith shall be included in the contract price for the work.

1.10 TESTING LABORATORIES

Testing is required to be performed by the Contractor as part of his Quality Control Program to verify contract compliance. This Quality Control Testing is to be conducted by a project or commercial laboratory which has been found adequate and qualified by a Corps of Engineers Division Laboratory Inspection Team.

1.10.1 Approved Testing Laboratories

A composite listing of approved testing laboratories within the Savannah District is available upon request. The Contractor should engage the

services of a laboratory contained in the composite list. Contractors may obtain the list by calling (678) 354-0310. Fax requests can be made to number (678) 354-0330.

1.10.2 Other Laboratory Services

The Contractor may engage the services of a laboratory other than those approved by Corps of Engineers District Laboratory Inspection Team if they comply with the following:

- a. The Contractor identifies and proposes the unapproved laboratory a minimum of 90 days prior to the start of testing. This time is necessary to allow for scheduling an inspection by a Corps of Engineers District Laboratory team. The time for Government inspection will not be the basis for an increase in the contract performance period.
- b. All costs of Government inspection shall be the responsibility of the Contractor.
- c. The Contractor may request Government inspection and approval prior to award by forwarding a written request to:

US Army Engineer District, Savannah
Environmental and Materials Unit
200 North Cobb Parkway
Building 400, Suite 404
Marietta, GA 30062

1.11 CONSTRUCTION SCHEDULE RESTRAINTS - FORT BRAGG, NC

1.11.1 Occupancy

The work to be performed is to be accomplished in facilities which will be [occupied and in normal usage] [unoccupied and vacant] [unoccupied but furnished] during the course of construction. It is the intent of these provisions to provide for maximum coordination between construction activities pursuant to this contract and concurrent ongoing routine activities of base personnel. Interference with and inconvenience to the occupants or routine of the facility shall be held to an absolute minimum.

1.11.2 Protection

Contractor is responsible to provide such covering, shields and barricades as are required to protect building occupants, equipment, stores, supplies, etc., from dust, debris, weather intrusion, water, moisture or other cause of damage resulting from construction.

1.11.3 Phasing and Sequence

1.11.3.1 General

In addition to the submittals required by clause SCHEDULES FOR CONSTRUCTION CONTRACTS (see SECTION 00700, FAR 52.236-15) the Contractor shall submit for approval a summary work schedule setting forth schedule dates for initiation and completion of construction in each work area. No work shall be performed prior to approval of this schedule and all work shall be performed in strict adherence thereto. If departures from this schedule appear to be required or desired, the Contracting Officer shall be promptly

notified and his approval will be required prior to implementation of said departure(s).

1.11.3.2 Special Work Restraints

As stated in each task order.

1.11.4 Time of Performance

1.11.4.1 Access to Buildings

All work requiring access to building interiors excluding attics, crawl spaces, etc., and all other work shall be performed between 7:30 a.m. and 4 p.m. (normal working hours for base where project is located) excluding official holidays, unless otherwise indicated or approved by the Contracting Officer. Requests to work during other than these normal hours shall be made in writing at least 48 hours in advance. For example, a request to work on a Saturday shall be submitted no later than Thursday at noon.

1.11.4.2 Work Requiring Outages

Work requiring outages of utilities or building systems will be accomplished during normal working hours in accordance with prior approved schedule(s).

1.11.5 Contractor Vehicle/Equipment Access to Fort Bragg

All Contractor-owned and privately owned vehicles requiring access to Fort Bragg on a regular basis are required to be registered. Vehicles not registered will have limited access points to the installation and will be searched. Registration procedures will be in accordance with Fort Bragg Regulation 190-5. Registration for privately owned vehicles will require a letter from the General Contractor for each individual employee and vehicle needing registration. Passes for subcontractor employees will have to have letters from the General Contractor. The format of the letter is in Appendix B of FB Regulation 190-5 and is also available in MS-Word format from the Corps of Engineers Field Office. Registration for Contractor owned vehicles requires a sponsorship letter from the Area Engineer. The format for the sponsorship letter is in Appendix C of FB Regulation 190-5 and is also available in MS-Word format from the Corps of Engineers Field Office. The Contractor shall prepare the sponsorship letters for each vehicle and submit them to Corps of Engineers Quality Assurance Representative to obtain required signature. The Quality Assurance Representative will return them after they have been signed. Once a General Contractor letter or sponsorship letter has been obtained the vehicle driver must go to the registration center, Building 8-1078, on Randolph Street to register the vehicle. To register the driver must bring a drivers license, State registration, proof of insurance, and proof of SSN if not on drivers license. The driver will have to complete FB Form 2229 'Vehicle Registration Worksheet' which is available at the registration center. Drivers will also have to sign an agreement for a criminal background check.

Contractor-owned vehicles will be given a temporary pass that can only be used by the registered driver/vehicle combination. All trucks larger than a pickup are only allowed access through Access Control Points #8 (Knox Street) and #1 (Long Street). See the Fort Bragg Vicinity Map for locations of other access points.

1.11.6 Outages

Contractor's work requiring outages of utility systems or building systems will require 2 weeks' advance notice and will be subject to the approval of the Contracting Officer. Contractor will be held responsible for unauthorized utility disruptions that cause damage or loss to the Government's real property, equipment, or operations. The Contractor will be held responsible for utility disruptions that extend beyond this period.

Limits of Duration:

Water ----- 4 hours
Sewer ----- 4 hours
Electricity ----- 4 hours
Natural Gas: Seasons to be determined by Fort Bragg PWBC
 During heating season -- 3 hours
 During cooling season -- 6 hours
LP Gas: Seasons to be determined by Fort Bragg PWBC
 During heating season -- 3 hours
 During cooling season -- 6 hours
#2 Fuel Oil: Seasons to be determined by Fort Bragg PWBC
 During heating season -- 3 hours
 During cooling season -- 6 hours
High Temperature Water (HTW): Seasons to be determined by Fort Bragg
 PWBC
 During heating season -- 3 hours
 During cooling season -- 6 hours
Steam: Seasons to be determined by Fort Bragg PWBC
 During heating season -- 3 hours
 During cooling season -- 6 hours
Chilled Water: Seasons to be determined by Fort Bragg PWBC
 During heating season -- 3 hours
 During cooling season -- 6 hours

*The cooling season at Fort Bragg is 1 May through 1 October. The heating season at Fort Bragg is 1 October through 1 May.

The Contractor shall provide temporary utilities systems for any utility outage longer than the limits of duration shown above.

1.11.7 Continuity

All tools, labor and materials required to complete any item of work within a given work area or requiring an outage of any building utility or system, shall be available at the site prior to commencement thereof. Once work has commenced on an item of work, said work shall be continuously and diligently performed to completion and acceptance. Breaks in work to be negotiated with the Contracting Officers Representative if other than Holidays.

1.11.8 Permits

1.11.8.1 Excavation Permits

An Excavation Permit, FB Form 1605, shall be presented to the Resident Engineer and approved by the Facilities Engineer 7 working days prior to any excavation that penetrates the ground by 6 or more inches. A sample of this form is included in Attachment 1 to Section 00800 or can be obtained

from the Resident Office upon request. The Contractor shall contact the Resident Engineer's Office for an appointment for spotting of utility lines. A signed copy of the digging permit shall be kept on site at all times.

1.11.8.2 Disposal Permits

A permit is required to use the installation land clearing and inert debris and demolition landfills. Landfill permits shall be processed with the Environmental Branch of the PWBC Environmental and Natural Resources Division through the Contracting Officer. Permits are issued for the life of the specific contract only. Only materials produced on the project for which the permits are issued may be disposed of in the land clearing and inert debris and demolition landfills. The Contractor shall keep a copy of the completed permit with the vehicle throughout the contract disposal operation. Copies of the disposal permit forms will be provided at the Preconstruction Conference. The land clearing and inert debris and demolition debris disposal site locations are shown on the drawings.

1.11.8.3 Borrow Permits

A permit is required to use the Fort Bragg borrow material pits. Borrow pit permits shall be processed with the Environmental Branch of the PWBC Environmental and Natural Resources Division through the Contracting Officer. Permits are issued for the life of the specific contract only. Borrow materials may only be used on the project for which the permits are issued. The Contractor shall keep a copy of the completed permit with the vehicle throughout the contract borrow operation. Copies of the borrow permit forms will be provided at the Preconstruction Conference. The borrow pit location is shown on the drawings.

1.11.9 Road and/or Railroad Closures

Road and/or railroad closures will require 2 weeks' advance written notice and be subject to the Contracting Officer's approval. Notice shall state reason for closure, date and time closure will commence and estimated duration of closure. A sketch shall be provided showing location of excavated area and placement of barricades and signs. Closures shall be limited to a maximum of 5 calendar days. Kendenburg Street, Ardennes Road, and 6th Street from Kendenburg Street to Gruber Road are closed all year round Monday through Friday between the hours of 6:30 a.m. and 7:45 a.m.

1.11.10 Landfills

1.11.10.1 Land Clearing and Inert Debris (LCID) Landfill

The land clearing and inert debris (LCID) landfill is permitted for disposal of yard waste (pine needles, limbs, trees, untreated wood, unpainted wood), inert debris (bricks, concrete, rubble, glass, concertina wire), and uncontaminated soil.

1.11.10.2 Demolition Landfill

The demolition landfill is permitted for disposal of construction and renovation debris: buildings, asphalt, painted and treated wood, incidental scrap metals, shingles, and debris incidental to construction such as cement or joint compound bags, plastic pails or metal cans or drums, insulation, and wallboard.

1.11.10.3 Transfer Station

White goods (appliances), tires, aluminum cans, and municipal solid waste (such as paper, plastic, cardboard, or household garbage) must be disposed of at the transfer station. Special arrangements must be made with the Environmental Branch of the PWBC Environmental and Natural Resources Division through the Contracting Officer to dispose of liquids, hazardous waste, and tires.

1.11.10.4 Disposal of Asbestos

Non-friable asbestos can be disposed of in the demolition landfill. Friable asbestos must be double bagged and disposed of in the section of the demolition landfill designated for that purpose.

1.11.10.5 Municipal Solid Waste (MSW)

Municipal solid waste (MSW) shall be disposed of in dumpsters (either Fort Bragg's or the contractor's) designated for MSW or at the Fort Bragg transfer station. Operating hours for the transfer station are 7:30 a.m. to 3:00 p.m. MSW shall be defined as any wastes other than those described above, to include garbage, vegetable waste and containers thereof resulting from the handling, preparation, cooking and consumption of foods, and excess quantities of paper, plastic, and cardboard (construction material packaging is acceptable).

1.11.10.6 Trash Containers

All trash containers on the job site must be covered at all times to ensure that trash does not blow around. In addition, all light/loose material will be secured such that it will not blow around during windy weather.

1.11.10.7 Construction Debris Leaving Site

All construction debris/trash that leaves the project site will be covered from the time that it leaves the construction site. Any mud or soil which leaves the project site will be cleaned up by the Contractor immediately upon discovery or notification of such an occurrence.

1.11.11 Landforms

Contractor will be required to maintain existing landforms, drainage patterns, and healthy, mature vegetation to the maximum extent possible and will replace damaged vegetation, sod, and ground cover.

1.11.12 Topsoil

Any suitable topsoil stripped from the site during the course of work will be stockpiled onsite for reuse. Any excess topsoil remaining upon completion of project will be stockpiled in the DPW compound.

1.11.13 Unforeseen Site Conditions

Any unforeseen site conditions, unmapped utility systems, or historical/archeological items encountered during site surveys, soil borings, or construction excavation will be reported to the Contracting Officer.

1.11.14 Replacement

The Contractor shall be held responsible for the replacement of any utility systems, facilities, or Government equipment damaged during the course of the contract.

1.11.15 Mowing

The Contractor will mow the grass on the construction site weekly or when the following conditions warrant: centipede grass will be maintained to a maximum height of 2 inches and a minimum height of 1 inch; all other grasses will be mowed to keep the height of the grass to a maximum of 4 inches and a minimum of 2 inches.

1.11.16 Communications Systems

The Director of Information Management will be notified through the Contracting Officer's Representative of the preparatory meeting for the communications system.

*2

1.12 ~~DELETED~~PROGRESS PHOTOGRAPHS

~~The Contractor shall, during the progress of the project, furnish the Contracting Officer progress photographs and color slides to depict progress of construction. The photographic work shall be performed by a qualified, established, commercial photographer. The photographs and slides shall be taken between the 1st and 5th day of each month and be delivered to the Contracting Officer not later than the 20th day of the same month taken. The photographs and slides shall be taken from not less than six positions for each month as selected by the Contracting Officer. They shall show, inasmuch as practicable, work accomplished during the previous month. The photographs shall be 8 inch by 10 inch color glossy prints and the slides 35 millimeter color slides. Each photograph shall be identified showing date made, contract title and number and a brief description of work depicted and shall be sequentially numbered. The identifying data shall be placed on the back of the prints. Slides shall have a number placed on the frame corresponding to the appropriate identified print, the name of the project, the date and a brief description of work depicted. No identifying data shall appear on the face of prints or in the viewing area of slides. One copy of each photograph and the corresponding negative and slide shall be furnished to the Contracting Officer by the time stipulated above. No separate payment will be made for these services and all costs in connection therewith shall be considered incidental to costs of the overall project.~~

1.13 CLEANUP

Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

1.14 RESTORATION OF STORAGE AREA

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor

for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01780A

CLOSEOUT SUBMITTALS

05/02

PART 1 GENERAL

1.1 SUBMITTALS

1.2 PROJECT RECORD DOCUMENTS

1.2.1 As-Built Drawings

1.2.1.1 Government Furnished Materials

1.2.1.2 Working As-Built and Final As-Built Drawings

1.2.1.3 Drawing Preparation

1.2.1.4 Computer Aided Design and Drafting (CADD) Drawings

1.2.1.5 Omitted

1.2.1.6 Payment

1.2.2 As-Built Record of Equipment and Materials

1.2.3 Final Approved Shop Drawings

1.2.4 Construction Contract Specifications

1.2.5 Real Property Equipment

1.3 WARRANTY MANAGEMENT

1.3.1 Warranty Management Plan

1.3.2 Performance Bond

1.3.3 Pre-Warranty Conference

1.3.4 Contractor's Response to Construction Warranty Service
Requirements

1.3.5 Warranty Tags

1.4 MECHANICAL TESTING, ADJUSTING, BALANCING, AND COMMISSIONING

1.5 OPERATION AND MAINTENANCE MANUALS

1.6 FINAL CLEANING

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section Table of Contents --

UFGS-01780A/S (May 2002)

SECTION 01780A

CLOSEOUT SUBMITTALS
05/02

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

As-Built Drawings; G

Drawings showing final as-built conditions of the project. The final CADD as-built drawings shall consist of one set of electronic CADD drawing files in the specified format, two sets of black-line prints, and one set of the approved working as-built drawings.

SD-03 Product Data

As-Built Record of Equipment and Materials; G

Two copies of the record listing the as-built materials and equipment incorporated into the construction of the project.

Warranty Management Plan; G

Two sets of the warranty management plan containing information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. The Contractor shall furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

Warranty Tags

Two record copies of the warranty tags showing the layout and design.

Final Cleaning

Two copies of the listing of completed final clean-up items.

1.2 PROJECT RECORD DOCUMENTS

1.2.1 As-Built Drawings

This paragraph covers as-built drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working as-built drawings" and "final as-built drawings" refer to contract drawings which are revised to be used for final as-built drawings.

1.2.1.1 Government Furnished Materials

Two sets of paper drawings revised to reflect all bid amendments will be provided by the Government at the preconstruction conference for markup of as-built conditions. Electronic CADD files in Microstation format will be provided by the Government at the preconstruction conference for updating CADD file as-built drawings.

1.2.1.2 Working As-Built and Final As-Built Drawings

The Contractor shall revise two sets of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. These working as-built marked drawings shall be kept current on a weekly basis and at least one set shall be available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes.

Final as-built drawings shall be prepared after the completion of each definable feature of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project). The working as-built marked prints and final as-built drawings will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working and final as-built drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the as-built drawings. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of updated drawings. The working and final as-built drawings shall show, but shall not be limited to, the following information:

a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the as-built drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.

b. The location and dimensions of any changes within the building structure.

c. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

d. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

e. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

f. Changes or modifications which result from the final inspection.

g. Where contract drawings or specifications present options, only the option selected for construction shall be shown on the final as-built prints.

h. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, the Contractor shall furnish a contour map of the final borrow pit/spoil area elevations.

i. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.

j. Modifications (change order price shall include the Contractor's cost to change working and final as-built drawings to reflect modifications) and compliance with the following procedures.

(1) Directions in the modification for posting descriptive changes shall be followed.

(2) A Modification Circle shall be placed at the location of each deletion.

(3) For new details or sections which are added to a drawing, a Modification Circle shall be placed by the detail or section title.

(4) For minor changes, a Modification Circle shall be placed by the area changed on the drawing (each location).

(5) For major changes to a drawing, a Modification Circle shall be placed by the title of the affected plan, section, or detail at each location.

(6) For changes to schedules or drawings, a Modification Circle shall be placed either by the schedule heading or by the change in the schedule.

(7) The Modification Circle size shall be 1/2 inch diameter unless the area where the circle is to be placed is crowded. Smaller size circle shall be used for crowded areas.

1.2.1.3 Drawing Preparation

The as-built drawings shall be modified as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working as-built prints, and adding such additional drawings as may be necessary. These working as-built marked prints shall be neat, legible and accurate. These drawings are part of the permanent records of this project and shall be returned to the Contracting Officer after approval by the Government. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Government.

1.2.1.4 Computer Aided Design and Drafting (CADD) Drawings

Only personnel proficient in the preparation of CADD drawings shall be employed to modify the contract drawings or prepare additional new drawings. Additions and corrections to the contract drawings shall be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols shall be the same as the original line colors, line weights, lettering, layering conventions, and symbols. If additional drawings are required, they shall be prepared using the specified electronic file format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final as-built drawings shall be identical to that used on the contract drawings. Additions and corrections to the contract drawings shall be accomplished using CADD files. The Contractor will be furnished "as-designed" drawings in Microstation J format compatible with a Windows NT 2000 operating system or Windows XP. The electronic files will be supplied on compact disc, read-only memory (CD-ROM). The Contractor shall be responsible for providing all program files and hardware necessary to prepare final as-built drawings. The Contracting Officer will review final as-built drawings for accuracy and the Contractor shall make required corrections, changes, additions, and deletions.

a. Corrections shall be made in the "Model" files rather than the individual sheet file when model files are referenced. Once the model file is corrected the individual sheet file will automatically be corrected.

b. The contractor shall modify the drawings at construction completion to indicate the as-built character of all site components:

(1) These drawings will conform to the level symbology of the model files and be free of any superfluous construction detail. The intent is to show As-Built conditions and should not include any components that are not as-built, i.e., if the pre-work map showed a water line 3' from a curb and was constructed 4' from the curb, the as-built map will show only the final location of the water line.

(2) The grading model file will clearly indicate the final grade of the site at a contour interval not greater than one foot.

(3) The final inverts of all utilities will be shown on the model files. Where utilities were installed which follow the surface of the ground, the depth of that utility will be indicated. Where there is a variance in the depth of the utility, the break point and character of variance will be shown.

(4) The model files will clearly identify all utilities installed with a trace wire and/or cathodic protection.

(5) The model files will show a minimum of two tie points for all subsurface control devices to include valves, manholes, handholes, switches, etc. The tie-points will be directed such that they form a triangle with no inclusive angle less than 30° or greater than 150°. No leg of the triangle will be longer than 100'. Valid tie-points will run to identifiable above ground objects such as poles or building corners as is in keeping of good survey practice for the recovery of monuments.

(6) The model files will clearly indicate the entry point and character of all utilities running to or from structures.

c. When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the Contractor in letters at least 3/16 inch high. All other contract drawings shall be marked either "AS-Built" drawing denoting no revisions on the sheet or "Revised As-Built" denoting one or more revisions. Original contract drawings shall be dated in the revision block.

d. Within 10 days for contracts less than \$5 million or 20 days for contracts \$5 million and above after Government approval of all of the working as-built drawings for a phase of work, the Contractor shall prepare the final CADD as-built drawings for that phase of work and submit two sets of blue-lined prints of these drawings for Government review and approval. The Government will promptly return one set of prints annotated with any necessary corrections. Within 7 days for contracts less than \$5 million or 10 days for contracts \$5 million and above the Contractor shall revise the CADD files accordingly at no additional cost and submit one set of final prints for the completed phase of work to the Government. Within 10 days for contracts less than \$5 million or 20 days for contracts \$5 million and above of substantial completion of all phases of work, the Contractor shall submit the final as-built drawing package for the entire project. The submittal shall consist of one set of electronic files on compact disc, read-only memory (CD-ROM), two sets of blue-line prints and one set of the approved working as-built drawings. They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any transactions or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CADD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final as-built drawing files and marked prints as specified shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

1.2.1.5 Omitted

1.2.1.6 Payment

No separate payment will be made for as-built drawings required under this contract, and all costs accrued in connection with such drawings shall be considered a subsidiary obligation of the Contractor.

1.2.2 As-Built Record of Equipment and Materials

The Contractor shall furnish one copy of preliminary record of equipment and materials used on the project 15 days prior to final inspection. This preliminary submittal will be reviewed and returned 2 days after final inspection with Government comments. Two sets of final record of equipment and materials shall be submitted 10 days after final inspection. The designations shall be keyed to the related area depicted on the contract drawings. The record shall list the following data:

RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA

Description	Specification Section	Manufacturer and Catalog, Model, and Serial Number	Composition and Size	Where Used
-------------	--------------------------	---	-------------------------	---------------

1.2.3 Final Approved Shop Drawings

The Contractor shall furnish final approved project shop drawings 30 days after transfer of the completed facility.

1.2.4 Construction Contract Specifications

The Contractor shall furnish final as-built construction contract specifications, including modifications thereto, 30 days after transfer of the completed facility.

1.2.5 Real Property Equipment

The Contractor shall furnish a list of installed equipment furnished under this contract. The list shall include all information usually listed on manufacturer's name plate. The "EQUIPMENT-IN-PLACE LIST" shall include, as applicable, the following for each piece of equipment installed: description of item, location (by room number), model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty. A draft list shall be furnished at time of transfer. The final list shall be furnished 30 days after transfer of the completed facility.

1.3 WARRANTY MANAGEMENT

1.3.1 Warranty Management Plan

The Contractor shall develop a warranty management plan which shall contain information relevant to the clause Warranty of Construction in Section 00800. At least 30 days before the planned pre-warranty conference, the Contractor shall submit the warranty management plan for Government approval. The warranty management plan shall include all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan shall be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below shall include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase shall be submitted to the Contracting Officer for approval prior to each monthly pay estimate. Approved information shall be assembled in a binder and shall be turned over to the Government upon acceptance of the work. The construction warranty period shall begin on the date of project acceptance and shall continue for the full product warranty period. A joint 4 month and 9 month warranty inspection shall be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and the Customer Representative. Information contained in the warranty management plan shall include, but shall not be limited to, the following:

a. Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subcontractors, manufacturers or suppliers involved.

b. Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.

c. A list for each warranted equipment, item, feature of construction or system indicating:

- (1) Name of item.
- (2) Model and serial numbers.
- (3) Location where installed.
- (4) Name and phone numbers of manufacturers or suppliers.
- (5) Names, addresses and telephone numbers of sources of spare parts.
- (6) Warranties and terms of warranty. This shall include one-year overall warranty of construction. Items which have extended warranties shall be indicated with separate warranty expiration dates.
- (7) Cross-reference to warranty certificates as applicable.
- (8) Starting point and duration of warranty period.
- (9) Summary of maintenance procedures required to continue the warranty in force.
- (10) Cross-reference to specific pertinent Operation and Maintenance manuals.
- (11) Organization, names and phone numbers of persons to call for warranty service.
- (12) Typical response time and repair time expected for various

warranted equipment.

d. The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.

e. Procedure and status of tagging of all equipment covered by extended warranties.

f. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

1.3.2 Performance Bond

The Contractor's performance bond shall remain effective throughout the construction period.

a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.

c. Following oral or written notification of required construction warranty repair work, the Contractor shall respond in a timely manner. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Contracting Officer to proceed against the Contractor.

1.3.3 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Contracting Officer, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section. Communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty shall be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor shall furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warranted construction, shall be continuously available, and shall be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

1.3.4 Contractor's Response to Construction Warranty Service Requirements

Following oral or written notification by the Contracting Officer, the Contractor shall respond to construction warranty service requirements in accordance with the "Construction Warranty Service Priority List" and the three categories of priorities listed below. The Contractor shall submit a report on any warranty item that has been repaired during the warranty period. The report shall include the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframes specified, the Government will perform the work and backcharge the construction warranty payment item established.

a. First Priority Code 1. Perform onsite inspection to evaluate situation, and determine course of action within 4 hours, initiate work within 6 hours and work continuously to completion or relief.

b. Second Priority Code 2. Perform onsite inspection to evaluate situation, and determine course of action within 8 hours, initiate work within 24 hours and work continuously to completion or relief.

c. Third Priority Code 3. All other work to be initiated within 3 work days and work continuously to completion or relief.

d. The "Construction Warranty Service Priority List" is as follows:

Code 1-Air Conditioning Systems

- (1) Recreational support.
- (2) Air conditioning leak in part of building, if causing damage.
- (3) Air conditioning system not cooling properly.

Code 1-Doors

- (1) Overhead doors not operational, causing a security, fire, or safety problem.
- (2) Interior, exterior personnel doors or hardware, not functioning properly, causing a security, fire, or safety problem.

Code 3-Doors

- (1) Overhead doors not operational.
- (2) Interior/exterior personnel doors or hardware not functioning properly.

Code 1-Electrical

- (1) Power failure (entire area or any building operational after 1600 hours).
- (2) Security lights
- (3) Smoke detectors

Code 2-Electrical

- (1) Power failure (no power to a room or part of building).
- (2) Receptacle and lights (in a room or part of building).

Code 3-Electrical

Street lights.

Code 1-Gas

- (1) Leaks and breaks.
- (2) No gas to family housing unit or cantonment area.

Code 1-Heat

- (1). Area power failure affecting heat.
- (2). Heater in unit not working.

Code 2-Kitchen Equipment

- (1) Dishwasher not operating properly.
- (2) All other equipment hampering preparation of a meal.

Code 1-Plumbing

- (1) Hot water heater failure.
- (2) Leaking water supply pipes.

Code 2-Plumbing

- (1) Flush valves not operating properly.
- (2) Fixture drain, supply line to commode, or any water pipe leaking.
- (3) Commode leaking at base.

Code 3 -Plumbing

Leaky faucets.

Code 3-Interior

- (1) Floors damaged.
- (2) Paint chipping or peeling.
- (3) Casework.

Code 1-Roof Leaks

Temporary repairs will be made where major damage to property is occurring.

Code 2-Roof Leaks

Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

Code 2-Water (Exterior)

No water to facility.

Code 2-Water (Hot)

No hot water in portion of building listed.

Code 3-All other work not listed above.

1.3.5 Warranty Tags

At the time of installation, each warranted item shall be tagged with a durable, oil and water resistant tag approved by the Contracting Officer. Each tag shall be attached with a copper wire and shall be sprayed with a silicone waterproof coating. The date of acceptance and the QC signature shall remain blank until project is accepted for beneficial occupancy. The

tag shall show the following information.

- a. Type of product/material_____.
- b. Model number_____.
- c. Serial number_____.
- d. Contract number_____.
- e. Warranty period_____from_____to_____.
- f. Inspector's signature_____.
- g. Construction Contractor_____.
- Address_____.
- Telephone number_____.
- h. Warranty contact_____.
- Address_____.
- Telephone number_____.
- i. Warranty response time priority code_____.
- j. WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

1.4 MECHANICAL TESTING, ADJUSTING, BALANCING, AND COMMISSIONING

Prior to final inspection and transfer of the completed facility; all reports, statements, certificates, and completed checklists for testing, adjusting, balancing, and commissioning of mechanical systems shall be submitted to and approved by the Contracting Officer as specified in applicable technical specification sections.

1.5 OPERATION AND MAINTENANCE MANUALS

Operation manuals and maintenance manuals shall be submitted as specified. Operation manuals and maintenance manuals provided in a common volume shall be clearly differentiated and shall be separately indexed.

1.6 FINAL CLEANING

The premises shall be left broom clean. Stains, foreign substances, and temporary labels shall be removed from surfaces. Carpet and soft surfaces shall be vacuumed. Equipment and fixtures shall be cleaned to a sanitary condition. Filters of operating equipment shall be replaced. Debris shall be removed from roofs, drainage systems, gutters, downspouts and boot wash areas. Paved areas shall be swept and landscaped areas shall be raked clean. The site shall have waste, surplus materials, and rubbish removed.

The project area shall have temporary structures, barricades, project signs, fences and construction facilities removed. A list of completed clean-up items shall be submitted on the day of final inspection.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

SECTION 02050

DEMOLITION

1.1 GENERAL REQUIREMENTS

The work includes demolition, salvage of identified items and materials, and removal of resulting rubbish and debris. Rubbish and debris shall be removed from Government property daily, unless otherwise directed, to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the Contracting Officer. In the interest of conservation, salvage shall be pursued to the maximum extent possible; salvaged items and materials shall be disposed of as specified.

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

Work Plan

Systems Warranties

Materials (Roofing)

Handling of Hazardous Materials

The procedures proposed for the accomplishment of the work. The procedures shall provide for safe conduct of the work, careful removal and disposition of materials specified to be salvaged, protection of property which is to remain undisturbed, coordination with other work in progress, and timely disconnection of utility services. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations.

1.3 DUST CONTROL

The amount of dust resulting from demolition shall be controlled to prevent the spread of dust to occupied portions of the construction site and to avoid creation of a nuisance in the surrounding area. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as ice, flooding and pollution.

1.4 PROTECTION

1.4.1 Protection of Existing Property

Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the extent of the work. The Contractor shall take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Government; any damaged items shall be repaired or replaced as approved by the Contracting Officer. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.4.2 Protection From the Weather

The contractor shall not remove more roofing than can be replaced in the same day, in case of inclement weather the contractor shall have on hand suitable materials on the jobsite in order to protect building interior.

The interior of buildings to remain and salvageable materials and equipment shall be protected from the weather at all times.

1.4.3 Protection of Trees

Trees within the project site which might be damaged during demolition and which are indicated to be left in place shall be protected by a 6 foot high fence. The fence shall be securely erected a minimum of 5 feet from the trunk of individual trees or follow the outer perimeter of branches or clumps of trees. Any tree designated to remain that is damaged during the work under this contract shall be replaced in kind or as approved by the Contracting Officer.

1.4.4 Environmental Protection

The work shall comply with the requirements of Section 02956, Environmental Protection.

1.5 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.6 USE OF EXPLOSIVES

Use of explosives will not be permitted.

PART 2 PRODUCTS (not applicable)

PART 3 EXECUTION

3.1 OMITTED

3.2 UTILITIES

Existing utilities shall be removed as indicated. When utility lines are encountered that are not indicated on the drawings, the Contracting Officer shall be notified prior to further work in that area.

3.3 OMITTED

3.4 DISPOSITION OF MATERIAL

Title to material and equipment to be demolished, except Government salvage and historical items, is vested in the Contractor upon receipt of notice to proceed. The Government will not be responsible for the condition, loss or damage to such property after notice to proceed.

3.4.1 Salvageable Items and Material

Contractor shall salvage items and material to the maximum extent possible.

3.4.1.1 Material Salvaged for the Contractor

Material salvaged for the Contractor shall be stored and removed as approved by the Contracting Officer. Material salvaged for the Contractor shall not be sold on the site.

3.5 CLEAN UP

Debris and rubbish shall be removed from work site daily. Debris shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.

END OF SECTION

SECTION 02081

ASBESTOS REMOVAL
Revised 12 Oct. 95

1. APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only, including but not limited to the following:

1.1 Environmental Protection Agency (EPA).

EPA 560/5-84.024, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

EPA 2 OT-2003, For Managing Asbestos in Place, July 90.

1.2 North Carolina Workers Compensation Act (including Section 97-60).

North Carolina Asbestos Hazard Management Program Rules as adopted by 15A NCAC 19C.0600.

North Carolina Occupational Safety and Health Standards for the Construction Industry, 29 CFR Part 1926 as adopted by 13 NCAC 7C.0102(a) 1926.1101.

North Carolina General Statutes, Chapter 97, 130 and 143.

1.3 Code of Federal Regulations (CFR) Publications.

29 CFR Access to Employee's Exposure and Medical
1910.20, 1101 Records

29 CFR Respiratory Protection
1910.134,1101

29 CFR Specifications for Accident Prevention Signs
1910.145,1101 and Tags

29 CFR Asbestos, Tremolite, Anthophyllite, and
1926.58 Actinolite

40 CFR 61,
Subpart A General Provisions

40 CFR 61,
Subpart M National Emission Standard for Asbestos

40 CFR 241 Guidelines for the Land Disposal of Solid Wastes

40 CFR 259 Criteria for Classification of Solid Waste
Disposal Facilities and Practices

1.4 American National Standards Institute (ANSI) Publications.

Z9.2-79 Fundamentals Governing the Design and
Operation of Local Exhaust Systems

Z88.6-1984 American National Standard for Respiratory Protection
Respiratory Use - Physical Qualifications for Personal

88.2-1992 Practices for Respiratory Protection.

1.5 National Institute of Occupational Safety and Health (NIOSH)
Publications.

Manual of Analytical Methods, 2d Ed., Volume 1, Physical and Chemical
Analysis Method (P&CAM)

Method 7400 Phase Contrast Microscopy

Method 7402 Transmission Electron Microscopy

1.6 Underwriters Laboratories (UL), Inc. Publication.

586-77 Test Performance of High Efficiency,
(R 1982) Particulate, Air Filter Units

2. REMOVAL AND DISPOSAL:

2.1 Definitions.

2.1.1 Asbestos Abatement - Procedures to control fiber release from
asbestos-containing materials. Includes removal, encapsulation, enclosure,
repair, demolition and renovation activities.

Class I asbestos work 29 CFR 1926.1101 - means activities involving
the removal of TSI and Surfacing ACM and PACM.

Class II asbestos work 29 CFR 1926.1101 - means activities involving
the removal of ACM which is not thermal system insulation or surfacing
material. This includes, but is not limited to the removal of asbestos-
containing wallboard, floor tile and sheeting, roofing and siding shingles and
construction mastics.

Class III asbestos work 29 CFR.1101 - means repair and maintenance
operations, where ACM, including thermal system insulation and surfacing
material, is likely to be disturbed.

Class IV asbestos work 29 CFR 1926.1101 - means maintenance and custodial activities during which employees contact ACM and PACM and activities to clean up waste and debris containing ACM and PACM.

2.1.2 Amended Water. Water-containing surfactant, a wetting agent which enhances penetration.

2.1.3 Asbestos. A class of magnesium-silicate minerals that occur in fibrous form. Minerals that are included in this group are chrysotile, crocidolite, amosite, anthophyllite asbestos, tremolite asbestos, and actinolite asbestos.

2.1.4 Asbestos-Containing Material (ACM). Material composed of asbestos of any type and in an amount greater than 1 percent by weight, either alone or mixed with other fibrous or non-fibrous materials.

2.1.5 Asbestos Control Area. An area where asbestos removal operations are performed which is isolated by physical boundaries to prevent the spread of asbestos dust, fibers, or debris.

2.1.6 Asbestos Fibers. Asbestos fibers having an aspect ratio of at least 3:1 and 5 micrometers or longer.

2.1.7 OSHA Asbestos Permissible Exposure Limit. Limit is 0.1 fibers (longer than 5 micrometers) per cubic centimeter as an 8-hour TWA.

2.1.8 Area Monitoring. Sampling of asbestos fiber concentrations within and outside the asbestos control areas which is representative of the airborne concentrations of asbestos fibers which may reach the breathing zone.

2.1.9 Clean Room. An uncontaminated room having facilities for storage of employee's street clothing and uncontaminated materials and equipment.

2.1.10 Contracting Officer's Representative (COR). The DPWE Environmental Officer shall serve as the COR for the abatement of ACM.

2.1.11 Decontamination Area. An enclosed area adjacent and connected to the asbestos control area consisting of an equipment room, shower area, and clean room which is used for decontamination of workers, materials, and equipment.

2.1.12 Encapsulate. The process whereby an encapsulant is applied to asbestos-containing materials to control the release of asbestos fibers into the air.

2.1.13 Encapsulant. A liquid material which can be applied to ACM which controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating

into the material and binding its components together (penetrating encapsulant).

2.1.14 Equipment Room (Dirty Room). A room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

2.1.15 Fibers. All fibers regardless of composition as counted in the NIOSH 7400 procedure, or asbestos fibers of any size as counted using the 7402 procedure.

2.1.16 Friable Asbestos Material. Material that contains more than 1 percent asbestos by weight which can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

2.1.17 Glovebag Technique. A method with limited applications for removing small amounts of friable ACM from heating, ventilation, and air-conditioning (HVAC) ducts, short piping runs, valves, joints, elbows, and other nonplanar surfaces in a noncontained (plasticized) work area. The glovebag assembly is a manufactured or fabricated device consisting of a glovebag (typically constructed of 6-mil transparent polyethylene or polyvinyl chloride plastic), two inward projecting long sleeves, an integral tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. All workers who are permitted to use the glovebag technique must be highly trained, experienced, and skilled in this method.

2.1.18 High Efficiency Particulate Air (HEPA) Filter Equipment. A HEPA-filtered vacuuming equipment with a UL 586 filter system capable of collecting and retaining asbestos fibers. Filters shall be of 99.97 percent efficiency for retaining 0.3 micrometer diameter particles.

2.1.19 Non-friable ACM. Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating, binder, or other material so that the asbestos is well bound and may not release fibers in excess of the Permissible Exposure Limit during any appropriated use, handling, storage, transportation, or processing. Non-friable asbestos material is considered hazardous during removal and disposal procedures.

a. Category I non-friable asbestos-containing material means asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than 1% asbestos.

b. Category II non-friable asbestos-containing material means any non-friable asbestos-containing materials not included in Category I non-friable.

2.1.20 Prior Experience. The Contractor/Industrial Hygienist on asbestos projects shall have sufficient experience to ensure capability of performing

the asbestos removal in a satisfactory manner. Experience shall be in areas related to material composition, project size, number of employees, and the engineering work practice and personal protection controls required.

2.1.21 Time-Weighted Average (TWA). The TWA is measured for an 8-hour period for a concentration of fibers (5 micrometers or longer) per cubic centimeter of air.

2.1.22 Regulated Area. A regulated area is a set-up, managed and controlled area under the supervision of an OSHA Competent Person. A decision was made that asbestos-containing materials were present, and it was possible that maintenance operations could result in airborne concentrations of asbestos that could exceed the Permissible Exposure Limit. Precautions and procedures have application to work in this area. Properly trained workers must exercise caution to avoid release of asbestos fibers.

2.2 Description of Work. The work covered by this section includes the handling of Category I non-friable materials containing asbestos which are encountered during removal and demolition operations and the incidental procedures and equipment required to protect workers and occupants of the building or area, or both, from contact with airborne asbestos fibers. The work also includes the disposal of the removed ACM. Perform work in accordance with 29 CFR 1926.58, 40 CFR 61, Subparts A and M, and the requirements specified herein. The asbestos work includes the demolition, and removal of the following materials:

- a. This work is to be conducted a OSHA Class II Activities.
- b. Removal and disposal of asbestos-containing roof flashing mastic.
- c. Locations of tests for ACM are to be included. A listing of the results of these tests is shown on the plans. Tests are representative only and may not be consistent for all areas of ACM to be removed. The Contractor may make additional tests at his expense if additional testing is necessary.

2.3 Title to Materials. Materials resulting from demolition work, except asbestos as specified by NESHAP, otherwise shall become the property of the Contractor unless they shall be disposed of as specified herein.

2.4 Medical requirements. 29 CFR 1926.58

2.4.1 Medical Examinations. Before exposure to airborne asbestos fibers, provide workers with a comprehensive medical examination. The content of the examination shall be consistent with 28 CFR 1926.58 (m)(2)(ii). This examination is not required if adequate records show the employee has been examined as required by 29 CFR 1926.58 within the past year. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos fibers and within 30 calendar days before or after the termination of employment in such occupation. Specifically identify

X-ray films of asbestos workers to the consulting radiologist, and mark medical record jackets with the word "ASBESTOS." Interpretation and classification of X-ray films shall be conducted in accordance with Appendix E, 29 CFR 1926.58.

2.4.2 Medical Records. Maintain complete and accurate records as required by 29 CFR 1926.58 of employees' medical examinations for a period of at least 30 years after termination of employment, and make records of the required medical examinations available for inspection and copying to: The Assistant Secretary of Labor for Occupational Safety and Health, The Director of the National Institute for Occupational Safety and Health (NIOSH), or authorized representatives of either, and the employee's physician upon the request of the employee or former employee.

2.5 Training. Prior to assignment to asbestos work, each employee shall be instructed for a minimum of 8 hours by the OSHA-approved Training Course in the methods of recognizing asbestos; the health effects associated with asbestos; the relationship between smoking and asbestos in producing lung cancer; the purpose, proper use, fitting instructions and limitations of respirators; the nature of operations that could result in exposure to asbestos; the importance of necessary protective controls to minimize exposure and any necessary instructions in the use of these controls and procedures; the appropriate work practices for performing the asbestos removal job; medical surveillance program requirements; and a review of 29 CFR 1926.58 safety and health precautions, and the use and requirements for protective clothing and equipment, including respirators. The instruction will fully cover engineering and other hazard control techniques and procedures. Maintain complete and accurate records of training for each employee. Records shall be maintained for 1 year beyond the last date of employment.

2.6 Permits and Notifications. Obtain necessary permits in conjunction with asbestos removal, hauling and disposition, and provide timely notifications of such actions as may be required by Federal, State, and local government in writing 10 working days prior to the commencement of work, Title 15 NC Administrative Code, Chapter 2D.0525 (40CFR, Part 61, Subpart M) and the Asbestos Hazard Management Program Rules, 15A NCAC 19 C.0601-0607.

2.7 Safety and Health Compliance. In addition to detailed requirements of these specifications, comply with laws, ordinances, rules, and regulations of Federal, State, regional, and local authorities regarding handling, storing, transport, and disposal of asbestos waste materials. Comply with the applicable requirements of the current issue of 29 CFR 1926.58 and 40 CFR 61, Subparts A and M. Submit matters concerning interpretation of standards to the appropriate administrative agency for resolution before starting work. Where specification requirements and referenced documents vary, the most stringent requirement shall apply.

2.8 Respirator Program. Establish a written respirator program as required by ANSI 288.2 and 29 CFR 1910.134, 29 CFR 1926.1101 and base requirements.

2.9 Industrial Hygienist. The industrial hygienist shall be certified by the American Board of Industrial Hygiene and have prior experience in the health and safety aspects of an asbestos removal project. The C.I.H. may assign a properly trained field project for monitor to provide these services providing that individual is under the supervision of the C.I.H.

3. GENERAL: The Contractor shall have all necessary equipment, labor force, materials, and support staff to perform the removal, encapsulation, or enclosure within the time allotted in accordance with the current EPA, OSHA, State, Local and Federal governmental regulations. If work is being performed by an outside contractor, then applicable insurance's apply.

3.1 Notification. The Contractor shall notify the following offices in writing 10 working days prior to beginning any asbestos removal operation:

North Carolina Department of Environment, Health and Natural Resources
Division of Epidemiology Occupational and Environmental Epidemiology Section
Health Hazards Controls Branch
P.O. Box 27687
Raleigh, North Carolina 27511-7687
PHONE: (919) 733-0820

OSHA Director
NC Department of Labor
Seaboard Building
413 N. Salisbury Street
Raleigh, NC 27605
PHONE: (419) 733-4589

3.2 Project Notebook. The Contractor will supply the above offices with the following information in a notebook.

3.2.1 Name and address of Contractor.

3.2.2 Address and description of the building, including size, age, prior use of the building, and quantities of friable and non-friable asbestos material and portions to be removed.

3.2.3 Scheduled starting and completion dates for removal.

3.2.4 Copy of Contractor's work plan (see Section 20.2). Written procedures that will be employed to comply with all applicable regulations.

3.2.5 Name and address of the waste disposal site where the asbestos waste will be deposited. When disposal is not on a Government-owned landfill, a letter of approval from the landfill used will be required. Receipts from the landfill will be turned in to the COR after asbestos is deposited.

3.3 Waste Disposal Site. The Contractor shall be responsible for obtaining approval for a waste disposal site in compliance with Section 61.25 of the EPA regulations.

3.4 Worker Safety Instruction. The Contractor shall furnish written documentation that all employees have had instruction on the dangers of asbestos exposure, on respirator use, decontamination, and OSHA, EPA, State and local regulations.

3.5 References Required on Jobsite. The Contractor shall have in their possession one copy of OSHA Regulation 1926.58, Asbestos, and Environmental Protection Agency 430 CFR Part 62, SubPart M: National Emission Standard for Asbestos Stripping Work Practices, and Disposal of Asbestos Waste. Compliance with the above standards by the Contractor is mandatory.

3.6 Approved Work Plan. The Contractor shall have at his office and at the job site the approved work plan (see Section 20.2).

3.7 Inspection of Work Area. The Contractor shall be responsible for inspecting the site and, prior to beginning, for confirming area in which work is to be performed.

4. MATERIAL AND EQUIPMENT: Listed in this section are specifications for materials generally needed for use during asbestos removal operations. It is not inferred that all materials listed are required by these specifications. In some instances, materials listed are required by the specifications, and in some instances, material required to complete the work may not be listed. In the latter event, the Contractor shall submit the material for use to the COR, and obtain the COR's approval prior to use of submitted materials and equipment.

4.1 Material and Equipment. Material and equipment include, but are not limited to, the following:

4.1.1 Truck. Appropriate heavy-duty truck with operable tailgate for hauling to disposal site.

4.1.2 Polyethylene sheets, 6 mil thickness used to protect building walls and the ground.

4.1.3 Work Clothes. Full-body coveralls, disposable head covers, boots or sneakers, hard hats, and eye protection. Where an oxyacetylene cutting torch is used, the disposable clothing shall be fire rated as required by OSHA regulations.

4.1.4 Respirators. Air-supplied respirators shall be required on all jobs unless four air samples show a controlled fiber level. The Contractor can change to a different class respirator compatible with the controlled level of airborne fibers of the first four air samples. This can be verified, provided

the Abatement Contractor can provide one or more project logs that closely resemble this project and that those projects air monitoring records are in line with the level of respiratory equipment he has provided for his personnel and OSHA/NIOSH prescribed limits. Respirators shall be NIOSH-approved for asbestos in accordance with exposure levels as per OSHA standards 1926.58. Disposable single-use respirators are unacceptable. The minimum protection allowable on this project will be provided by a half-face air-purifying respirator with screw-in cartridges comparable to the Mine Safety Administration's (MSA) Type S or Wilson's R-12. A minimum quantity of respirators sufficient for all persons will be provided as well as replacement cartridges for two daily changes per person. All workers shall be clean between the face and the respirator in contact with the face. When powered air-purifying respirators, air-supplied systems, and/or self-contained breathing apparatus are determined to be necessary, they shall be selected and used in accordance with OSHA criteria. Respirators, proper clothing, and protective equipment shall be worn by all personnel during the following activities or in these locations.

In the material removal area.

Unless the contractor can show the Negative exposure assessment can be obtained from the initial assessment, objective data, or historical data closely resembling the current working conditions and work is being conducted as Non-Friable removal.

4.1.5 Wetting Agent (Surfactant). An effective EPA-approved surfactant shall be used in accordance with manufacturer's recommendation.

4.1.6 Showers. As improvised by Contractor and approved by the COR, the shower shall be properly drained at all times. Hot and cold water shall be available to the employees along with soap and towels.

4.1.7 Spray Equipment. Appropriate for applying water and surfactant.

4.1.8 Waste Disposal Bags. Polyethylene bags 6 mil thick with labels.

4.1.9 Drums (Optional). Twenty- or fifty-gallon metal drums appropriate for holding waste disposal bags during filling and for transport to disposal site.

4.1.10 Signs and Labels. As required by EPA and OSHA/NESHAP regulations.

4.1.11 Cleanup Equipment. Adequate to perform gross cleanup after removal. To include wet cleaning materials and HEPA vacuum as needed.

4.1.12 Radios. A minimum of two "walkie-talkie" radios with minimum 2-watt output shall be required for inside work area to outside work area

communication.

4.1.13 Tape. Duct tape shall be required to provide an airtight seal.

4.1.14 Lattice. Stripping or equivalent methods as approved by the COR for securing polyethylene sheeting to walls. Walls damaged by the Contractor due to puncturing with nails or screws shall be repaired and repainted by the Contractor to match existing surfaces.

4.1.15 HEPA Exhaust System. A HEPA exhaust system (i.e., Micro Trap) capable of providing four air changes per hour in the work area or as approved by the COR shall be required. Either new HEPA filters shall be used, or the Contractor shall show that each filter meets performance requirements. In all cases, exhaust equipment and systems shall comply with ANSI Z9.2-79. At no time shall the building ventilation system be used or allowed to supply or exhaust air into or out of a work area. (NOTE: Any patent infringements should be investigated prior to the set-up of a negative pressure system).

5. DECONTAMINATION:

5.1 Recommended Decontamination Procedure.

5.1.1 Entry and Exit Procedure. An adequate decontamination area consists of a serial arrangement of connected rooms or spaces. All persons without exception shall pass through this decontamination area for entry into and exit from the work area for any purpose.

5.1.2 Approval of Decontamination Units. All prefabricated or trailer decontamination units must have prior approval of the COR before being erected at the jobsite.

5.1.3 Corrective Steps Required. If a prefabricated or trailer decontamination unit is disapproved or if the decontamination unit is constructed on the site, or if the decontamination unit becomes contaminated or its integrity diminishes through use as determined by the COR, no employee will use the unit until corrective steps are taken.

5.2 Decontamination Areas.

5.2.1 Outside Room (Clean Area). In this room, the workers shall leave all street clothes and clean working clothes (usually disposable coveralls). Respiratory protection equipment is also picked up in this area. No asbestos-contaminated items shall enter this room. Workers enter this room either from the outside of the structure dressed in street clothes or naked from the showers.

5.2.2 Shower Room. This is a separate room used for transit by cleanly dressed workers entering the job from the outside (clean area) room or by workers proceeding to the showers after undressing in the equipment room.

5.2.3 Equipment Room (Contaminated Area). Work equipment, footwear, and additional contaminated work clothing shall be left here. This is a change and transit area for workers.

5.2.4 Work Area (Contaminated Area). The work area shall be separated by polyethylene barriers from the equipment room.

5.3 Entry Sequence (From Exterior to Contaminated Work Area).

5.3.1 Worker enters outside room (clean area) and removes clothing, puts on clean coveralls and respirator with serviceable or new cartridges, and passes through the shower into the equipment room.

5.3.2 Any additional clothing and equipment left in the equipment room (contaminated area) required by the worker is put on. (When the work area is too cold for coveralls only, the worker will usually provide himself with additional warm garments. These must be treated as contaminated clothing and left in the decontamination unit.)

5.3.3 Worker proceeds to work area.

5.4 Decontamination Sequence (From Contaminated Work Area to Exterior).

5.4.1 Before leaving the work area, the worker shall remove all gross contamination and debris from his coveralls. In practice, this is usually carried out by one worker assisting another.

5.4.2 The worker shall proceed to the equipment room and remove all clothing except respiratory protection equipment. Extra work clothing may be stored in the contaminated end of the unit. Disposable coveralls are placed in a bag for disposal with other asbestos-contaminated materials. The worker shall then proceed rapidly into the shower room. Respiratory protection equipment shall be removed only after the worker is under the shower to prevent inhalation of fibers during removal of contaminated clothing. If the filter cartridges get wet, dispose of them as asbestos debris.

5.4.3 After showering, the worker shall move to the clean room and dress in either new coveralls for reentry into the work area, or in street clothes if leaving the project.

5.4.4 After showering, each employee shall inspect, clean, and thoroughly decontaminate their respirator. The respirator shall be dried, placed in a suitable storage bag, and stored in the clean room. If the filter cartridge has not gotten wet because the filter face was covered (taped), then leave filters in place.

6. OMITTED

7. PREPARATION OF THE WORK AREA FOR THE REMOVAL, ENCAPSULATION, OR ENCLOSURE ACTIVITIES WITHIN A CRAWL SPACE. DELETE THIS SECTION

8. CONTRACTOR'S RESPONSIBILITIES: The Contractor shall set up change rooms and a shower outside the work area. These shall include: outside room (clean room), double barrier, shower room, double barrier, equipment rooms, double barrier and work area. Suitable toilet facilities shall be supplied by the Contractor for use in the work area.

8.1 Required Actions for Workers. All workers without exception shall:

8.1.1 Remove street clothes in the change room and put on OSHA-required clothing, protective equipment, head covers and respirator before entering the shower area (see paragraph 5.2).

8.1.2 Remove gross contamination before leaving the work area. All coveralls, head covers, boots, etc. shall be removed and properly disposed of before leaving the equipment room. Naked, with the exception of the respirators, the workers shall proceed to the shower room. Under the shower, respirators shall be removed and cleaned. Only respirator filter cartridges that have not been overloaded where they restrict the user's normal breathing with respirator can be reused. In this case only, can the cartridges be reused and then only if the cartridges do not become wet in the contamination shower. If filters faces have been taped over, then they should be left on respirators and placed in sealed plastic bags and hung at entrance side of clean room to the shower room. Soap, towels, etc. shall be provided by the Contractor. The Contractor shall maintain proper sanitary facilities.

8.1.3 At the end of the day upon entering the clean room, employees shall be provided with the new coveralls or shall put on their street clothes. Upon reentry into the clean room, after breaks, the workers shall place on new coveralls and put on the respirators before entering the shower room.

8.1.4 Shower upon every exit of the work area before entering the clean room to change into street clothes or clean disposable suits.

8.2 Prohibited Actions. Workers shall not eat, drink, smoke, chew gum, or chew tobacco or snuff in the work area and the equipment room. No worker, under any circumstances, may leave and reenter the work area without going through the decontamination procedures.

8.3 Bulletin Board. The Contractor shall post the decontamination procedures and work practices to be followed by the workers in the equipment room and clean room.

8.4 Contractor Provided Items. The Contractor shall provide appropriate work clothes, head cover, footwear, and towels to any official representative of the institution or agency who inspects the jobsite. Respirators will be supplied by the official representative when a dual cartridge type is

appropriate.

8.5 Protective Clothing and Equipment Required. All persons entering the work area shall wear an approved respirator and disposable coveralls, head cover, and footwear. If a person has not been previously cleared to enter work area, their medical and respirator approval must be presented prior to entry.

9. WORK AREA PREPARATION:

9.1 Decontamination Facility. The Contractor shall set up a decontamination facility outside of the work area which will consist of a change room, shower area, and equipment area. The decontamination facility shall be subject to the approval of the official representative of the institution or agency.

9.2 Isolation of Work Area. The Contractor shall isolate the work area for the duration of the work by placing signs and barriers around the regulated work area

10. METHOD OF REMOVAL:

10.1 Approval Required. Prior to asbestos removal, the work area and decontamination unit will be subject to the approval of the Contracting Officer, the DPWE Environmental Officer and Supervising Air Monitor or his designated air monitor.

10.2 Amended Water. The asbestos materials shall be sprayed with amended water containing a wetting agent to enhance penetration. The wetting agent shall be a concentration recommended by the manufacturer. A fine spray of the amended water shall be applied to reduce fiber release preceding the removal of the asbestos material. The material shall be sufficiently saturated to prevent emission of airborne fibers in excess of the exposure limits prescribed in the OSHA regulations referenced in these specifications.

10.3 Containment of ACM for Disposal. All plastic sheeting, tape, cleaning material, clothing, and all other disposable material or items used in the work area shall be packed into suitable plastic bags (6 mil minimum). Each bag shall be individually sealed and placed in containers suitable for transport to the landfill. All materials shall be double bagged, and the outside bag and container shall be cleaned before leaving the area. The bags and containers shall be marked with the OSHA asbestos warning label prescribed by the OSHA regulations referenced in these specifications. A label containing the name of the generator and the owner's point of contact must be affixed to each bag.

10.4 Disposal. All disposal shall be in accordance with 40 CFR 61.150 and DOT 49 CFR parts 100, 394 and use the AHMB's (Asbestos Hazard Management Branch) waste shipment record for disposal. The Contractor shall transport

the sealed containers in a covered truck to the approved waste disposal site.

The ACM may also be transported by means of a dump truck or a dump container, that has been lined with 6 mil poly and is covered

10.5 Disposal of Excess Water. All excess water shall be either:

10.5.1 Combined with the removed material or other absorptive material and properly disposed of as per EPA regulations; or

10.5.2 Filtered using a high efficiency filter adequate to remove the asbestos and then placed in the normal sewage system.

11. OMITTED

12. OMITTED

13. FINAL DECONTAMINATION OF WORK AREA:

13.1 The Supervising Air Monitor or his representative shall perform a complete visual inspection of the work area to ensure that the asbestos-containing flashing mastic has been removed.

14. SUPERVISING AIR MONITOR (SAM):

14.1 The Supervising Air Monitor (SAM) representing and paid by the OWNER, shall provide expertise to the asbestos designer and contractor. The Supervising Air Monitor (SAM) shall provide all air monitoring and clearance air sampling, but is not directly responsible for the performance of the job.

At the job site, the SAM is expected to observe, be aware of, and comment on general work, site conditions and activities as they relate to the profession of industrial Hygiene, and make recommendations in writing to the Asbestos Designer, Owner and The Contractor.

The SAM and Air Monitor shall be accredited as an air monitor shall be accredited as a Supervising Air Monitor by the AHMB. In addition, either the SAM or the Air Monitor shall have taken a 24 hour respirator protection course that is either NIOSH, AIHA, or AHMB recognized. The SAM and Air Monitor shall submit copies of their NC accreditation's and documentation on respiratory protection training to the Asbestos Designer prior to the start of work.

14.2 Compliance with Applicable Regulations. All air samples will be taken in such a manner as to comply with all applicable OSHA, EPA and NC regulations and to provide a valid representation of airborne filter levels both inside and outside the work area during the project.

14.3 Results of Air Samples To Be Posted. All air samples taken during actual removal of asbestos materials will be analyzed before the next day's work and a copy posted at the jobsite. Copies of all air-sampling results shall be sent to the SAM. These copies shall include the following: sample number, sample description, flow rate, sample time, comments, and sample

results.

14.4 Periodic Air Monitoring. As determined by the SAM or APAM, periodic air monitoring will be conducted inside and outside the work area as a safety precaution. This sampling does not fulfill the Contractor's responsibility for OSHA air monitoring.

14.5 Air Monitoring Program. The Supervising Air Monitor (SAM) shall submit a written air monitoring program to the asbestos designer with a copy to the contractor. The SAM will provide the contractor with the following information for the required submittals.

14.5.1 The name, address, and telephone number of the certified industrial hygienist, industrial hygiene technician, or air monitoring professional.

14.5.2 The name, address, telephone number, and NIOSH's PAT Designation for the laboratory analyzing the air samples.

14.5.3 A proposed air-sampling strategy which shall include: a projected number of air samples, the types of air samples to be taken (area, personnel, ambient), how the air samples are to be taken (TWA or ceiling), the equipment to be used (pumps, calibration equipment, and filters) and how the samples will be transported to the laboratory.

14.5.4 No samples are to be worn through the showers. The SAM or APAM shall, from time to time, directly observe conditions and work practices represented by each sample and make appropriate notes in the air-sampling results. Proper performance of the sampling equipment shall be checked intermittently by the certified industrial hygienist or APAM.

14.5.5 The contractor shall be responsible for and submit a written air-monitoring program for personal air samples that is in compliance with the current OSHA collection and analytical regulations.

14.5.6 If the samples are being collected for the purpose of reducing respirator protection requirements, the SAM or his approved designee shall take the samples and directly observe the conditions and work practices represented by each sample and make appropriate notes in the air sampling results.

15. FINAL CLEANUP AND GUARANTEE:

15.1 Cleanup. If area air sampling, (NEA), or Historical Data determine the air fiber concentration are below 0.01 fibers/cc work area can be cleared using visual inspection as described in Section 13.

16. DISPOSAL OF MATERIAL AND RELATED DEBRIS:

16.1 Transport to Disposal Site. All ACM and ACM-contaminated debris will

be placed in a sealed covered truck to the predestinated disposal site in accordance with EPA guidelines and DOT regulations.

16.2 Respirators Required. Workers unloading the sealed containers and machinery operators will wear respirators when handling material at the disposal site.

16.3 Burial of ACM. The bags may be removed from the containers and placed in the burial site. If drums are used and do not become contaminated, they may be reused. However, if a bag is broken or damaged, the entire container shall be buried.

17. REGULATION VIOLATIONS:

17.1 If, at any time, the SAM or APAM decides that work practices are violating pertinent regulations or endangering workers, he will immediately notify in writing the on-site Contractor's representative that operations will cease until corrective action is taken.

17.2 While on the site, the SAM or APAM will act as an agent for the using agency and report violations to the Contracting Officer.

18. OMITTED

19. OMITTED

20. Submittals:

Per Job Submittals

Contractor's License's approved N.C. Permit Notification
Contractor's planed sequence of operation
Contractor's respiratory protection program and fit test records
Contractor's personnel decontamination procedures
Contractor's procedures for evacuation of injured
Contractor's list of supervisors and workers assigned to work in
containment areas. Include N.C. accreditation numbers, date of last medical e
Certificates of Performance that equipment required to contain airborne
asbestos fibers conforms to ANSI Z9.2-79
Contractor's Hazard Communication Program
A copy of the contractor's OSHA Form 200 involving employees injured or
having an illness related to this project
Contractor's copy of safety training records
Contractor's confined space program
Contractor's electrical and GFCI program
Contractor's letters to EMS, Police and Fire Departments
SAM Air Monitoring Program

21. Technical Specifications

21.1 Scope of Work, Replace Roofs Project No. FB 04100-0

The intent of this project is to obtain a "clean building and/or areas" which is defined as a building and/or area where the asbestos has been satisfactorily removed or rendered safe, has passed final visual inspection(s) and air sampling tests, and is considered acceptable for occupancy. Asbestos in these facilities is to be removed or rendered safe so that it may not be a source of asbestos fiber exposure to future occupants. During the removal process, present occupants, equipment, material and facilities will be appropriately protected so that no present or future exposure may occur. All roof removal work areas are (OSHA) Class II Removals as described in 29 CFR 1926.1101.

21.1.1 The total project encompasses the removal and disposal of asbestos-containing roof flashing mastic 5-15% chrysotile approximately 660 sf. building no. D-1926, 1385 sf. building H-4440, 335sf. building no. H-4235, 420 sf. building no. H-4358. The Contractor is responsible for verifying all locations and quantities prior to bidding. The asbestos reports and analytical data are attached at the end of this section.

21.1.2 The work on this project should be conducted as a non-friable removal using wet methods and no visible emission. Asbestos in roof flashing is typically tightly bound and is not released under normal conditions. These materials must not be subjected to sanding, grinding, sawing, or abrading. The use of a roofing knife or other device which slices the ACM is much less likely to create dust and should not render the material friable.

..21.1.3 Non-Friable removal the Contractor is still required to follow all applicable requirements of OSHA 29 CFR 1926.1101 and NESHAP.

21.1.4 Non-Friable removal The Owner may elect not use the services of the Supervising Air Monitor Section 14.

END OF THIS SECTION:

SECTION 02090

REMOVAL AND DISPOSAL OF LEAD-CONTAINING PAINT

PART 1 GENERAL

The intent of this project is to remove the roof components from Twelve Buildings in such a manner that the lead based painted stack vents may be removed and disposed of so as not to pose a hazard to the public, workmen and the environment.

1.1 REFERENCED SPECIFICATIONS

Unless modified by these project specifications, all specifications for general cleanup, scraping loose lead based paint, encapsulation of lead based paint, demolition of building materials coated with lead based paint, and disposal of lead based paint shall conform to the following publications and standards as if completely reproduced herein.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z9.2 1979 Fundamentals Governing the Design and
Operation of Local Exhaust Systems

ANSI Z88.2 1980 Respiratory Protection

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910.134 Respiratory Protection

29 CFR 1910.1025 Lead (General Industry)

29 CFR 1926.59 Hazard Communication

29 CFR 1926.55 Gases, Vapors, Fumes, Dusts, and Mists

29 CFR 1926.57 Ventilation

29 CFR 1926.62 Lead (Construction Industry)

40 CFR 260 Hazardous Waste Management Systems: General

40 CFR 261 Identification and Listing of Hazardous Waste

40 CFR 262 Generators of Hazardous Waste

40 CFR 263 Transporters of Hazardous Waste

40 CFR 264 Owners and Operators of Hazardous Waste
Treatment, Storage, and Disposal Facilities

40 CFR 265 Interim Status Standard for Owners and Operators

of Hazardous Waste Treatment, Storage, and
Disposal Facilities

40 CFR 268 Land Disposal Restrictions

49 CFR 172 Hazardous Materials Tables and Hazardous
Materials Communications Regulations

49 CFR 178 Shipping Container Specification

MILITARY SPECIFICATIONS (MIL)

MIL-A-22262 (Rev. A) (Am. 2) Abrasive Blasting Media Ship
Hull Blast Cleaning

UNDERWRITERS LABORATORIES INC. (UL)

UL 586 1990 High-Efficiency, Particulate, Air Filter
Units

1.2 DEFINITIONS

1.2.1 Action Level

Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter (30 ug/m³) of air over an 8-hour period. As used in this section, "30 Micrograms per cubic meter of air" (30 ug/m³) refers to the action level.

1.2.2 Air Monitoring

Sampling of lead concentrations within the lead control area and inside the physical boundaries which is representative of the airborne lead concentrations which may reach the breathing zone of personnel potentially exposed to lead.

1.2.3. Physical Boundary

Area physically roped or partitioned off around an enclosed lead control area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside lead control area."

1.2.4 Certified Industrial Hygienist (CIH)

As used in this section, refers to an Industrial Hygienist employed by the Contractor and is certified by the American Board of Industrial Hygiene in comprehensive practice, and/or he trained representative working under the direct supervision of the CIH.

1.2.5 Change Rooms and Shower Facilities

Rooms within the designated physical boundary around the lead control area

equipped with separate storage facilities for clean protective work clothing and equipment and for street clothes which prevent cross-contamination.

1.2.6 Decontamination Room

Room for removal of contamination personal protective equipment (PPE)

1.2.7 Eight-Hour Time Weighted Average (TWA)

Airborne concentration of lead averaged over an 8-hour workday to which an employee is exposed.

1.2.8 High Efficiency Particulate air (HEPA) Filter Equipment

HEPA filtered vacuuming equipment with a UL 586 Filter system capable of collecting and retaining lead-contaminated paint dust. A high efficiency particulate filter means 99.97 percent efficient against 0.3 micron size particles.

1.2.9 Lead

Metallic lead, inorganic lead compounds, and organic lead sops. Excluded from this definition are other organic lead compounds.

1.2.10 Lead Control Area

An enclosed area or structure with full containment to prevent the spread of lead dust, paint chips, or debris of lead-containing paint removal operations. The lead control area is isolated by physical boundaries to prevent unauthorized entry of personnel.

1.2.11 Lead Permissible Exposure Limit (PLM)

Fifty micrograms per cubic meter of air as 8-hour time weighted average as determined by 29 CFR 1926.62.

1.2.12 Personal Monitoring

Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour time weighted average concentration in accordance with 29 CFR 1926.62. Samples shall be representative of the employee's work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders, with a radius of 6 to 9 inches and the center at nose or mouth of an employee.

1.3 Disposal of Building Materials Painted With Lead Based Paint.

Federal regulations require a U.S. EPA generator identification number for use on the Uniform Hazardous Waste Manifest. The transportation and disposal of hazardous waste from this project must be arranged with the Contracting Officer.

a. Handle, store, transport, and dispose lead or lead-contaminated waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265. Comply with land disposal restriction notification requirements as required by 40 CFR 268.

1.4 Scope of Work

1.4.1 Buildings number C-6433, C-6533 and C-8145 unbolt air intake vents from flashing box in such a manner as not to disturb the lead based paint (34.68% Pb) wrap with two layers of 6 mil poly, label with proper labels and dispose of as lead waste. One each per building approximately 4'X4'X4'. Lead based paint in fair condition, units show signs of rust.

1.4.2 Building numbers D-1926, H-4480, H-4235 and H-4358, have lead pipe flashings muddled into the roof, remove in such a manner as not to damage the lead flashing wrap with two layers of 6 mill poly and dispose of as lead waste.

1.5 Employee Training - in accordance with 29 CFR 1926.62 Paragraph L.

End of Section

SECTION 02956

ENVIRONMENTAL PROTECTION DURING CONSTRUCTION

Index

- | | |
|---|--|
| 1. Scope | 8. Post-Construction Cleanup |
| 2. Quality Control | 9. Restoration of Landscape
Damage |
| 3. Environmental Protection Plan | 10. Maintenance of Pollution
Control Facilities |
| 4. Implementation | 11. Training in Pollution Control |
| 5. Subcontractors | |
| 6. Notification | |
| 7. Protection of Environmental
Resources | |

1. SCOPE: This section covers prevention of environmental pollution and damage to the environment as the result of construction operations under this contract and for those measures set forth in other technical provisions of these specifications. For the purpose of this specification, environmental pollution and damage to the environment is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural, and/or historical purposes. The control of environmental pollution and damage requires consideration of the potential effects of an action upon air, water, and land resources, and includes management of visual aesthetics, natural and cultural resources, noise levels, solid waste, hazardous waste, toxic waste, radiant energy, and radioactive materials, as well as other pollutants.

2. QUALITY CONTROL: The Contractor shall establish and maintain quality control for environmental protection of all items set forth herein. The Contractor shall record on daily reports any problems in complying with laws, regulations, ordinances, and corrective action taken. The Contractor shall immediately inform the Contracting Officer's Representative of any environmental problem.

3. ENVIRONMENTAL PROTECTION PLAN: The Contractor shall submit an Environmental Protection Plan which must be approved by the DPWE Environmental/Natural Resources Division prior to construction. It shall include, but is not limited to, the following:

3.1 Legal Requirements. A list of Federal, State, and local laws, regulations, and permits concerning environmental protection and pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits shall be included. Whenever there is a conflict between Federal, State, or local laws, regulations, and permit requirements, the more restrictive provision shall apply.

3.2 Omitted

3.3 Environmental Protection Procedures. Procedures to be implemented to provide the required environmental protection and to comply with the applicable laws and regulations shall be included. The Contractor shall set out the procedures to be followed to correct pollution of the environment due to accident, natural causes, or failure to follow the procedures set out in accordance with the Environmental Protection Plan.

3.4 Omitted

3.5 Environmental Monitoring Management Plan. The Environmental Protection Plan shall include plans for monitoring environmental compliance for the jobsite, including land, water, air, noise, hazardous and toxic wastes, and materials and solid waste disposal.

4. IMPLEMENTATION: The Contractor shall submit, in writing, the Environmental Protection Plan to the Contracting Officer's Representative within 10 days after receipt of Notice to Proceed. The Contracting Officer's Representative shall submit the plan to the DPWE Environmental/Natural Resources Division for approval. Approval of the Contractor's plan will not relieve the Contractor of his responsibility for adequate and continuing control of pollutants and other environmental protection measures.

5. SUBCONTRACTORS: Assurance that subcontractors comply with the environmental protection requirements of this section will be the responsibility of the prime Contractor.

6. NOTIFICATION: The Contracting Officer will notify the Contractor in writing of any observed noncompliance with the aforementioned Federal, State, or local laws or regulations, permits, and other elements of the Contractor's Environmental Protection Plan. The Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action and implement such action as approved by the DPWE Environmental/Natural Resources Division. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or costs or damages allowed to the Contractor for any such suspension.

7. PROTECTION OF ENVIRONMENTAL RESOURCES: The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The Contractor shall confine his activities to areas defined by the drawings and specifications.

7.1.1 Disposal of Discarded Materials. Discarded materials, other than those which can be included in the solid waste category, will be handled as directed by the Contracting Officer. Demolition debris shall be disposed of at the Fort Bragg Demolition Landfill on Lamont Road, and materials contaminated by asbestos shall be contained and disposed of in the Asbestos Section of the Fort Bragg Sanitary Landfill on Longstreet Road. A permit from the DPWE Environmental/Natural Resources Division is required to dispose of materials

in the landfills on post.

7.2 Omitted

7.3 Omitted

7.4 Omitted

7.5 Protection of Air Resources. The Contractor shall keep construction activities under surveillance, management, and control to minimize pollution of air resources. All activities, equipment, processes, and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with all State of North Carolina and Federal emission and performance laws and standards. Ambient Air Quality Standards set by the Environmental Protection Agency (EPA) shall be maintained for all construction operations and activities. The Contractor shall have sufficient functional equipment available to accomplish the task.

7.5.1 Particulates. Dust particles, aerosols, and gaseous byproducts from all construction activities and the processing and preparation of materials shall be controlled at all times.

7.5.2 Odors. Odors shall be controlled at all times for all construction activities, processing, and preparation of materials.

7.5.3 Air Quality. Monitoring of air quality shall be the responsibility of the Contractor. All air areas affected by the construction activities shall be monitored by the Contractor when directed by the Contracting Officer.

7.6 Reduction of Sound Intrusions. The Contractor shall keep construction activities under surveillance and control to minimize disturbances caused by excessive noise. Equipment shall have properly operating noise-muffling devices for the entire length of the contract.

8. POST-CONSTRUCTION CLEANUP: The Contractor shall be responsible to clean up all areas affected by the construction and restore them back to at least their original condition to include landscaping; planting of trees, grass, and shrubs damaged by construction. Construction debris shall be removed and properly disposed of.

9. RESTORATION OF LANDSCAPE DAMAGE: The Contractor shall restore all landscape features damaged or destroyed during construction operations outside the limits of the approved work areas. Such restoration shall be in accordance with the Environmental Protection Plan submitted for approval to the Contracting Officer. This work will be accomplished at the Contractor's expense.

10. MAINTENANCE OF POLLUTION CONTROL FACILITIES: The Contractor shall maintain all constructed facilities and portable pollution control devices for the duration of the contract or for the length of time construction activities produce the particular pollutant.

11. TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL: The Contractor shall train his personnel in all phases of environmental protection. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities (vegetative covers and instruments required for monitoring purposes) to ensure adequate and continuous environmental pollution control. Such training shall be completed before contract work begins.

*** END ***

SECTION 06100

ROUGH CARPENTRY

INDEX

1.1	SUMMARY (Not Applicable)	2.7	VAPOR RETARDER
1.2	REFERENCES	3.1	INSTALLATION OF FRAMING AND MISCELLANEOUS WOOD MEMBERS
1.3	SUBMITTALS	3.2	INSTALLATION OF SHEATHING
1.4	DELIVERY AND STORAGE	3.3	OMITTED
2.1	LUMBER AND SHEATHING	3.4	OMITTED
2.2	UNDERLAYMENT	3.5	OMITTED
2.3	PRESERVATIVE TREATMENT	3.6	INSTALLATION OF VAPOR RETARDER
2.4	ACCESSORIES AND NAILS	3.7	INSTALLATION OF INSULATION
2.5	OMITTED		
2.6	INSULATION		

PART 1 GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC)

AITC 111 (1979) Recommended Practice for Protection
of Structural Glued Laminated Timber During
Transit, Storage, and Erection

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A135.4 (1982) Basic Hardboard

ANSI A190.1 (1983) Structural Glued Laminated Timber

ANSI A208.1 (1987) Mat-Formed Wood Particleboard

AMERICAN PLYWOOD ASSOCIATION (APA)

APA AFG-01 (Jun. 1984) Adhesives for Field-Gluing Plywood to
Wood Framing

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 307	(1988) Carbon Steel Bolts and Studs 60 000 PSI Tensile Strength
ASTM C 518	(1985) Steady-State Heat Flux Measurements and Thermal Transmission Properties By Means of the Heat Flow Meter Apparatus
ASTM D 226	(1987) Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
ASTM D 2103	(1986) Polyethylene Film and Sheeting

AMERICAN WOOD PRESERVERS' ASSOCIATION (AWPA)

AWPA C2	(1987) Lumber, Timbers, Bridge Ties and Mine Ties--Preservative Treatment by Pressure Processes
AWPA C28	(1985) Preservative Treatment of Structural Glued Laminated Members and Laminations Before Gluing of Southern Pine, Pacific Coast Douglas Fir, Hem fir and Western Hemlock by Pressure Processes
AWPA M4	(1984) The Care of Preservative-Treated Wood Products

FEDERAL SPECIFICATIONS (FS)

FS FF-N-105	(Rev. B; Am. 3; Int. Am. 4) Nails, Brads, Staples and Spikes: Wire, Cut and Wrought
FS HH-I-521	(Rev. F) Insulation Blankets, Thermal (Mineral Fiber, for Ambient Temperatures)
FS HH-I-558	(Rev B; Am. 3) Insulation Blocks, Boards, Blankets; Thermal Mineral Fiber, Industrial Type

NATIONAL FOREST PRODUCTS ASSOCIATIONS (NFOPA)

NFOPA-01	(1986) National Design Specification for Wood Construction and Supplement - Design Values for Wood Construction
NFOPA-02	(1988) Manual for Wood Frame Construction

U.S. DEPARTMENT OF COMMERCE, NATIONAL BUREAU
OF STANDARDS (NBS), PRODUCT STANDARD

NBS PS 1 (1983) Construction and Industrial Plywood

1.3 SUBMITTALS

The following shall be submitted:

Design analysis and calculations of plywood roof sheathing members.

Drawings of plywood roof sheathing and other fabricated structural members shall indicate materials and shop and field erection details including methods of fastening.

Manufacturer's certificates attesting that lumber and material not normally grade marked or exempt from being grade marked meets the specified requirements are required.

1.4 DELIVERY AND STORAGE

Materials shall be delivered to the site in undamaged condition, stored off ground in fully covered, well ventilated areas, and protected from extreme changes in temperature and humidity. Laminated timber shall be sealed, wrapped, handled and stored in accordance with AITC 111. Bundle wrapping of laminated timber may be used, if approved.

PART 2 PRODUCTS

2.1 LUMBER AND SHEATHING

2.1.1 Grading and Marking

Materials shall bear the grademark, stamp or other identifying marks indicating grades of material and rules or standards under which produced. Such identifying marks on material shall be in accordance with the rule or standard under which the material is produced, including requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification. The inspection agency for lumber shall be certified by the Board of Review, American Lumber Standards Committee, to grade species used. Except for structural laminated members, plywood, and lumber; bundle marking will be permitted in lieu of marking each individual piece. Surfaces that are to be architecturally exposed to view shall not bear grademarks, stamps, or other types of identifying marks.

2.1.2 Sizes

Lumber and material sizes shall conform to requirements of the rules or standards under which produced. Unless otherwise specified, lumber shall be surfaced on four sides. Size references, unless otherwise specified, are nominal sizes, and actual sizes shall be within manufacturing tolerances allowed by the standard under which the product is produced.

2.1.3 Moisture Content

At the time lumber and other materials are delivered and when installed in the work their moisture content shall be as follows:

a. Treated and Untreated Lumber Except Roof Planking:

4 inches or less, nominal thickness 19 percent maximum

5 inches or more, nominal thickness 23 percent maximum

b. Roof Planking: 15 percent maximum.

c. Materials Other Than Lumber: In accordance with standard under which product is produced.

2.1.4 Structural and Miscellaneous Wood Members

2.1.4.1 Structural Members

Species and grades shall be as listed in NFOPA-01. The minimum grade lumber for all framing shall be No. 2 KD Southern Pine unless shown otherwise on the drawings.

2.1.4.3 Nonstress Graded Members

Members shall include bridging, corner bracing, furring, grounds, and nailing strips. Sizes shall be as follows unless otherwise shown:

Member	Size
Bridging	1 by 3 or 1 by 4 for use between members 2 by 12 and smaller; 2 by 4 for use between members larger than 2 by 12.
Corner bracing	1 by 4.
Furring	1 by 2.
Nailing strips	1 by 3 or 1 by 4 when used as shingle base or interior finish, otherwise 2-inch stock.

2.1.5 Sheathing

Sheathing shall be plywood for use as part of the roofing system.

2.1.5.1 Plywood

Plywood shall conform to NBS PS 1, Grade C-D with exterior glue. Sheathing for walls without corner bracing of framing shall have a span rating of 16/0 or greater for supports 16 inches on center and a span rating of 24/0 or greater for supports 24 inches on center.

2.2 UNDERLAYMENT

Underlayment shall conform to one of the following:

2.2.1 Hardboard

ANSI A135.4 service class, sanded one side, 1/4 inch thick, 4 feet wide.

2.2.2 Particleboard

ANSI A208.1, Grade 1-M-1, 1/4 inch thick, 4 x 4 feet.

2.2.3 Plywood

NBS PS 1, underlayment grade with exterior glue, or C-C (Plugged) exterior grade 11/32 inch thick, 4 feet wide.

2.3 PRESERVATIVE TREATMENT

Lumber not over 5 inches thick and plywood, when in contact with soil, shall be treated in accordance with AWPB FDN; when specified to be painted or used in roofing systems, AWPA C2 for water borne preservatives; and AWPA C2 for all other aboveground use. Except as otherwise specified, lumber over 5 inches thick shall be pressure preservative treated in accordance with AWPA C2. Structural glued laminated timber shall be treated in accordance with AWPA C28. Wood treated with oil-borne preservatives shall be clean, free from surface oil, and properly seasoned for use in building construction. Wood treated with water-borne preservatives shall be air-dried or kiln-dried to the moisture content specified for lumber and marked with the word "Dry." Creosote or coal-tar solutions shall not be used. Surfaces of lumber that will be exposed shall not be incised. Oil-borne preservative shall not be used on lumber and woodwork to be in contact with plaster or gypsum board. Preservatives containing water repellents shall not be used on wood to be painted. Exposed areas of treated wood that are cut or drilled after treatment shall receive a field treatment in accordance with AWPA M4. Unless otherwise specified for all-heart material of the previous mentioned species, the following items will always be treated:

- All wood members in contact with soil, including all-heart material of cedar, cypress, or redwood.
- All wood members in contact with water.
- All wood members exposed to the weather or within 18 inches or less of soil, unless otherwise specified to be coated.
- All wood members set into concrete regardless of location, including flush-with-deck wood nailers for roofs.
- All wood members in contact with slabs-on-grade, including wood floor sleepers over waterproofed slab surface.
- All wood members in contact with foundation walls.
- Furring strips used on exterior walls above grade.
- Nailing strips or nailers used in conjunction with roof systems.

2.4 ACCESSORIES AND NAILS

Accessories and nails shall conform to the following:

2.4.1 Adhesive

APA AFG-01.

2.4.2 Anchor Bolts

ASTM A 307, size as indicated, complete with nuts and washers.

2.4.3 Omitted

2.4.4 Bolts: Lag, Toggle, and Miscellaneous Bolts and Screws

Type, size, and finish best suited for intended use.

2.4.5 Clip Angles

Steel, 3/16 inch thick, size best suited for intended use; or zinc-coated steel or iron commercial clips designed for connecting wood members.

2.4.6 Expansion Shields

Type and size best suited for intended use.

2.4.7 Joist Hangers

Steel or iron, zinc-coated, size to fit members where used, sufficient strength to develop the full strength of supported member, complete with any special nails required.

2.4.8 Metal Bridging

Optional to wood bridging; zinc-coated steel, size and design to provide rigidity equivalent to specified wood bridging.

2.4.9 Nails and Staples

FS FF-N-105, size and type best suited for purpose. For sheathing and subflooring, length of nails shall be sufficient to extend 1 inch into supports.

In general, 8-penny or larger nails shall be used for nailing through 1 inch thick lumber and for toe nailing 2-inch thick lumber; 16-penny or larger nails shall be used for nailing through 2-inch thick lumber. Nails used with treated lumber and sheathing shall be galvanized.

2.5 OMITTED

2.6 INSULATION

Thermal resistance of insulation shall be not less than the R-values shown. R-values shall be determined at 75 degrees F in accordance with ASTM C 518. Insulation shall be the standard product of a manufacturer and factory marked or identified with manufacturer's name or trademark and R-value. Identification shall be on individual pieces or individual packages. Insulation shall conform to the following:

2.6.1 Batt or Blanket

Mineral fiber, FS HH-I-521, Type III, Class A, width as required for locations shown on the drawings.

2.6.2 Rigid Insulation

Mineral fiber, FS HH-I-558, Form A, Class 1.

2.7 VAPOR RETARDER

Type I, Grade D, style optional; asphalt-saturated felt conforming to ASTM D 226, Type I; or polyethylene sheeting conforming to ASTM D 2103, 4-mil thick.

PART 3 EXECUTION

3.1 INSTALLATION OF FRAMING AND MISCELLANEOUS WOOD MEMBERS

3.1.1 General

Members shall be closely fitted, accurately set to required lines and levels, and rigidly secured in place. Nailing shall be in accordance with the recommended Nailing Schedule as contained in NFOPA-02. Where detailed nailing requirements are not specified, nail size and nail spacing shall be sufficient to develop an adequate strength for the connection without splitting the members. Installation of timber connections shall conform to applicable requirements of NFOPA-01. Members shall be framed for passage of ducts and pipes shall be cut, notched, or bored in accordance with applicable requirements of NFOPA-02.

3.1.2 Structural Members

Members shall be adequately braced before erection. Members shall be aligned and all connections completed before removal of bracing. Individually wrapped members shall be unwrapped only after adequate protection by a roof or other cover has been provided. Scratches and abrasions of factory-applied sealer shall be treated with two brush coats of the same sealer used at the factory.

3.1.3 Omitted

3.1.4 Omitted

3.1.5 Omitted

3.1.6 Omitted

3.1.7 Omitted

3.1.8 Blocking

Blocking shall be provided as necessary for application of siding, sheathing, subflooring, wallboard, and other materials or building items, and to provide fire stopping. Blocking shall be cut to fit between framing members and rigidly nailed thereto.

3.1.9 Omitted

3.1.10 Nailers and Nailing Strips

Nailers and nailing strips shall be provided as necessary for the attachment of finish materials. Nailers used in conjunction with roof deck installation shall be installed flush with the roof deck system. Stacked nailers shall be assembled with spikes or nails spaced not more than 18 inches on center and staggered. Beginning and ending nails shall not be more than 6 inches for nailer end. Ends of stacked nailers shall be offset approximately 12 inches in long runs and alternated at corners. Anchors shall extend through the entire thickness of the nailer. Strips shall be run in lengths as long as practicable, butt jointed, cut into wood framing members when necessary, and rigidly secured in place.

3.1.11 Furring Strips

Furring strips shall be provided at the locations shown. Furring strips shall be installed at 16 inches on center unless otherwise shown, run in lengths as long as practicable, butt jointed and rigidly secured in place.

3.1.12 Rough Bucks and Frames

Rough bucks shall be set straight, true, and plumb, and secured with anchors near top and bottom of each wood member and at intermediate intervals of not more than 3 feet. Anchors for concrete shall be expansion bolts, and anchors for masonry shall be 3/16 inch by 1-1/4 inch steel straps extending not less than 8 inches into the masonry and turned down 2 inches into the masonry.

3.2 INSTALLATION OF SHEATHING

3.2.1 Plywood

Plywood roof sheathing shall be applied to the metal deck in strict accordance with the recommendations of the above listed pertinent publications to meet I-90 requirements.

3.3 OMITTED

3.4 OMITTED

3.5 OMITTED

3.6 INSTALLATION OF VAPOR RETARDER

Vapor retarder shall be applied over all wood wall sheathing, over studs to directly receive horizontal siding or board siding, over any wall sheathing to receive an unbacked stucco base. Vapor retarder over sheathing shall be applied horizontally, starting at the bottom, lapped 6 inches at edges and ends, and nailed at laps 16 inches on center.

3.7 INSTALLATION OF INSULATION

Insulation shall be installed after construction has advanced to a point that the installed insulation will not be damaged by remaining work. For thermal insulation the actual installed thickness shall provide the R-values shown. For acoustical insulation the installed thickness shall be as shown. Insulation shall be installed on the weather side of such items as electrical boxes and water lines. Unless otherwise specified, installation shall be in accordance with the manufacturer's recommendation.

*** END ***

SECTION 07111

ELASTOMERIC MEMBRANE WATERPROOFING

PART 1 GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 96	(1980) Water Vapor Transmission of Materials
-----------	--

ASTM E 154	(1968, R 1979) Materials for Use as Vapor Barriers Under Concrete Slabs and as Ground Cover in Crawl Spaces
------------	---

1.3 SUBMITTALS

SUBMITTALS:

Manufacturer's instructions for installation of the elastomeric membrane, including procedures for preparing the membrane for use, flashing, and splicing, shall be submitted for approval. Instructions shall include recommended or required protective covering and procedures for safe handling and use of cleaners, adhesives, and sealants.

Certificates of compliance shall be submitted attesting that the materials meet specification requirements. Certificates may show qualification of the identical compound in the specified test.

1.4 DELIVERY, STORAGE, AND HANDLING

Materials shall be delivered to the job site in unopened containers bearing the manufacturer's name, brand name, and description of contents. Membrane, flashing, and adhesives shall be stored in clean, dry areas. Storage temperature for adhesives shall be between 60 and 80 degrees F. Protection board shall be stored flat and off the ground.

PART 2 PRODUCTS

2.1 MATERIALS

All adhesives, mastics, cements, tapes, and primers shall be as recommended by the membrane manufacturer and shall be compatible with the materials to which they are to be bonded.

2.1.1 Performance Requirements

All membranes shall meet the following requirements when tested by the referenced ASTM standards:

Puncture Resistance (ASTM E 154) 40 pounds, minimum

Water Vapor Transmission at 80 degrees F
Permeance (ASTM E 96, Procedure B) 0.25 perms (max.)

Resistance to Soil Bacteria or Fungi
(ASTM G 21 or ASTM E 154) No sustained growth or discoloration after 21 days

2.1.2 Chlorinated Polyethylene (CPE) Sheeting

Membrane shall be uncured chlorinated polyethylene, synthetic elastomeric sheeting of 30 mils nominal thickness.

2.2 ACCESSORIES

Flashing, counterflashing, expansion joint covers and corner fillets shall be as recommended by the membrane manufacturer.

PART 3 EXECUTION

3.1 PREPARATION

Surfaces to which waterproofing is to be applied shall be clean, smooth, and free from deleterious materials and projections. Holes, honeycomb, cracks, or cavities shall be pointed or filled and finished flush with portland cement mortar. Top surfaces of projecting masonry or concrete ledges below grade, except footings, shall be beveled. Before waterproofing is applied, the surfaces to be covered shall be swept carefully to remove all dust and foreign matter. Concrete surfaces to receive elastomeric waterproofing will not be cured with compounds containing wax or oil.

3.2 APPLICATION

Waterproofing shall not be applied to wet surfaces. The ambient and surface temperatures shall be above 40 degrees F during application. Membrane under slabs shall be carried up abutting vertical surfaces to the level of finish of floor or to within ½ inch of the top edge of base where base is shown and cemented solid to the substrate. Membrane shall not be continuous through walls,

floors, piers, and columns unless otherwise shown. Concrete surfaces shall be primed to receive the membrane. Membranes shall be handled and installed in accordance with the approved installation instructions. All primers, adhesives, and mastics shall be applied in accordance with the membrane manufacturer's printed instructions. Laps shall be oriented so that water will flow over the lap, and not into them. As soon as the mastic is fully set and dry, joints shall be checked. Where any openings or fishmouths appear, joints shall be resealed and rerolled. Wrinkles and buckles shall be avoided in applying membrane and joint reinforcement. Nonadhering membranes shall be unrolled and allowed to remain flat for at least 2 hours before application. Membranes shall be drawn tight during installation without stretching. Self-adhering membrane shall be installed by removing the release sheets on the back of the membrane and applying the tacky surface onto the primed surface. Laps and splices shall be sealed prior to completion of a day's work.

3.2.1 Chlorinated Polyethylene (CPE) Sheeting

Sheets shall be lapped at edges and ends a minimum of 2-1/2 inches over the preceding sheet. All horizontal membranes shall overlap vertical surfaces by at least 3 inches.

3.3 TESTS

When required, and after the system is cured, the membranes on horizontal surfaces shall be tested by flooding the entire waterproofed area with a minimum of 2 inches head of water for a period of 24 hours. There shall be no water added after the start of the period. Measure water level at the beginning and at the end of the 24-hour period. If the water level falls, remove the water and inspect the waterproofing membrane. Leak sites shall be marked, dried and repaired, and the test shall be repeated.

3.4 PROTECTION

Horizontal applications of membrane shall be protected from traffic during installation. No equipment shall be allowed directly on the membrane. Plywood, or similar material, overlayment shall be provided for wheel-ways. Materials shall not be stored on the membrane. A protective covering shall be installed over the membrane immediately after installation or testing. If membrane is to be exposed, a temporary covering shall be applied to protect the membrane until the protection board is installed.

3.4.1 Projections

Projections passing through membrane shall be flashed as recommended by the manufacturer of the waterproofing membrane.

3.4.2 Counterflashing

Waterproofing connecting with work exposed to the weather shall be counterflashed

to form a water-tight connection. Upper edge of membrane waterproofing and protective covering shall be counterflushed.

3.4.3 Expansion Joints and Fillets

Expansion joints and corner fillets shall be installed as recommended by the manufacturer of the waterproofing membrane.

3.4.4 Vertical Membrane Waterproofing

Waterproofing shall be protected with a ½-inch minimum fiberboard, ½-inch asphalt-impregnated fiberboard or 1/8-inch compatible water-resistant (bitumen type) protection board. Edges of protection shall be butted, and exposed surfaces shall be covered by a coating of bitumen.

3.4.5 Horizontal Membrane Waterproofing

Waterproofing shall be covered with portland cement mortar not less than 3/4 inch thick, uniformly placed and allowed to set before subsequent construction is installed.

** End of Section **

SECTION 07220

ROOF INSULATION

PART 1 GENERAL

1.1 SUMMARY:

Work this Section with Section 07510 MULTI-PLY MODIFIED BITUMEN ROOFING SYSTEM. The Insulation System manufacturer and the Modified Bitumen Roofing System manufacturer shall be the same manufacturer. All products shall be by one manufacturer or products as recommended by this one manufacturer.

1.2 SUBMITTALS:

1.2.1 Certification of Compliance. Certificates of compliance shall be submitted for insulation and felt materials in accordance with the SPECIAL CONTRACT REQUIREMENTS.

1.2.2 Manufacturer's Recommendation. Insulation manufacturer's recommendations shall be submitted for the installation of insulation. Insulation shall be compatible with the modified bitumen roofing system.

1.2.3 Contractor's Quality Control (CQC) Procedure. The CQC procedure for insulation installation shall be submitted for approval prior to start of roof insulation work.

1.3 STORAGE OF MATERIALS

Insulation shall be kept dry at all times, before, during, or after delivery to the site and if exposed to moisture, shall be permanently removed from the site. Storage shall be in an enclosed building or trailer.

1.4 FIRE CLASSIFICATION

Insulation shall have been tested as part of a roof construction assembly of the type used in this project and the construction shall be listed for application on UL Class A and FM Class I-90 roofs.

1.5 ENVIRONMENTAL CONDITIONS

Air temperature shall be above 40 degrees F and there shall be no visible ice, frost, or moisture on the roof deck when the insulation and roofing are installed.

PART 2 PRODUCTS

2.1 GYPSUM BOARD (If required by manufacturer)

Gypsum board shall be moisture resistant 5/8-inch thick, minimum of 2.0 psf weight. Gypsum board shall be loosely laid over all existing steel decks. Anchorage shall be as described below.

2.2 INSULATION

Flat and Tapered Insulation shall be a standard product of the same manufacturer and shall be factory marked with the manufacturer's name or trade mark, the material specification number, the R-value at 75 degrees F, and the thickness. The insulation shall be CFC free. Minimum thickness shall be 1-inch. Provide tapered insulation as shown on the drawings to insure proper pitch to roof drains 1/4-inch per foot. Boards shall be marked individually. The entire insulation system shall be mechanically attached. All Insulation shall meet the following material requirements:

2.2.1 Rigid Polyisocyanurate Roof Insulation Board

Meet Federal Spec. HH-I-1972/Gen and HH-I 1972/1.2. FM I-90. Insulation board shall be for use with a Modified Bitumen Roofing System. The following Physical Characteristics are required:

<u>Physical Property</u>	<u>Test Method</u>	<u>Typical Value</u>
Water Vapor Transmission	ASTM E-96	<1.0 perms
Density	ASTM D-1622	Nom 2 pcf
Compressive Strength	ASTM D-1621	20 psi
Dimensional Stability	ASTM D-2126	2% Max.
Flame Spread	ASTM E-84	25 (core)
Service Temp.		-100 deg.F to +250 deg.F

2.2.2 High Density Fiberboard Recovery Board

High density fiberboard recovery board shall be 1/2-inch thick fully compatible with the insulation and Modified Bitumen System and shall also be mechanically

attached. High density fiberboard recovery board shall be of a type as recommended and furnished by the Modified Bitumen Roofing/Insulation manufacturer.

2.3 FASTENERS

ALL fasteners shall conform to the manufacturer's recommendations to produce a total roofing system meet these specifications.

2.3.2 Fasteners

Insulation manufacturer's recommendations except holding power when driven, shall be not less than Factory Mutual minimums and a "pull-out" value of 300 lbs per fastener to meet I 90.

2.4 WOOD NAILERS

Wood nailers shall conform to Section 06100 ROUGH CARPENTRY including preservative treatment. Edge nailers shall be not less than nominal 6 inches wide and of thickness to finish flush with the top surface of the insulation. Surface mounted nailers shall be a nominal 3 inches wide by the full thickness of the insulation.

PART 3 EXECUTION

3.1 SUBSTRATE PREPARATION

Substrate surface shall be smooth and dry at time of application. Nailers, blocking, curbs, and other items attached to the roof surface shall be in place before insulation work begins. Existing deck is to be inspected to insure proper securement. Provide a letter of existing roof acceptance to the Contracting Officer prior to commencement of new roofing work.

NOTE WELL: The Contractor shall prepare the substrate in strict accordance with the manufacturer's recommendations to warrant the roofing system. Any additional procedures or materials required by the manufacturer, to produce a compatible and warranted roofing system, shall be followed by the contractor at no additional expense to the Government.

3.2 INSTALLATION OF WOOD NAILERS

Nailers shall be secured to cast-in-place deck materials by not less than 3/8 inch diameter anchors embedded in the deck not over 4 feet on centers. Bolt anchors shall have nuts and washers countersunk, and bolts shall be cut flush with top of nailer. Powder-actuated fasteners, sized and spaced for nailer anchorage equivalent to that specified and indicated, may be used when approved.

Surface mounted nailers shall be installed parallel with the roof slope and

shall be spaced not over 4 feet face-to-face, except that where the insulation units are less than 4 feet in length the nailers shall be spaced to minimize cutting of the insulation.

3.3 INSTALLATION OF GYPSUM BOARD

Gypsum board shall be loose laid perpendicular to the roof deck with end joints over crests of the steel deck and staggered 2-feet in adjacent rows. Temporarily secure until final anchorage is made as indicated below.

3.4 APPLICATION OF INSULATION

Insulation shall be laid in two or more layers. Units of insulation shall be laid in courses parallel with the roof slope. End joints shall be staggered. Insulation shall be cut to fit neatly against adjoining surfaces. Joints between insulation boards shall not exceed 1/4 inch. Joints in successive layers shall be staggered with respect to joints of preceding layer. Insulation which can be readily lifted after installation is not considered to be adequately secured. Insulation shall be isolated from the modified bitumen roof membrane by a 1/2-inch layer of high density fiberboard compatible with the membrane and the insulation. Stagger joints between the insulation and the high density board.

3.4.1 Mechanical Fastening

All insulation and high density fiberboard recovery board, between the membrane and insulation, shall be mechanically fastened. Method of attachment shall be in accordance with recommendations of the insulation/modified bitumen roofing system manufacturer. Further, insulation and high density board shall be mechanically fastened to the existing decks to meet State of North Carolina Building Code Requirements, Chapter XII-Minimum Design Loads, and Factory Mutual Approval Guide and Loss Prevention Data Bulletin 1-28.

3.4.1.1 Steel Decks

Insulation fasteners shall be 16-gage fluorocarbon coated wire fasteners, as provided by the membrane manufacturer, shall be installed with a minimum pull-out of 425 pounds per fastener and a minimum deck penetration of 3/4-inch. Spacing of fasteners shall meet all FM, UL, and manufacturer requirements as herein stated.

3.4.1.2 Gypsum Concrete Decks

Insulation fasteners at gypsum concrete decks shall be nylon auger type fasteners, as provided by the membrane manufacturer, shall be installed with a minimum pull-out of 300 pounds per fastener and a minimum penetration as recommended by the roofing system manufacturer. Spacing of fasteners shall meet all FM, UL, and manufacturer requirements as herein stated.

3.4.2 High Density Fiberboard

Polyisocyanurate insulation system shall be isolated from the modified bitumen system by a ½-inch layer of high density fiberboard compatible with the membrane and the insulation. Stagger joints between the insulation and high density board.

3.4.3 Protection Requirements

The insulation shall be kept dry at all times. Insulation boards shall not be kicked into position. Exposed edges of the insulation shall be protected by cutoffs at the end of each work day or whenever precipitation is imminent. Cutoffs shall be as recommended by the insulation manufacturer. Cutoffs shall be removed when work is resumed. Edges of insulation at open spaces between insulation and parapets or other walls and spaces at curbs, etc., shall be protected until permanent roofing and flashing is applied. Storing, walking, wheeling, or trucking directly on insulation or on roofed surfaces will not be permitted. Smooth, clean board or plank walkways, runways, and platforms shall be used, as necessary to distribute weight to conform to a minimum 20 pounds per square foot live load.

3.5 CONTRACTOR QUALITY CONTROL

The Contractor shall establish and maintain a quality control procedure to assure compliance of the installed roof insulation with the contract requirements. Any work found not to be in compliance with the contract shall be promptly removed and replaced or corrected in an approved manner. Quality control shall include, but not be limited to, the following:

- a. Observation of environmental conditions; number and skill level of insulation workers; start and end time of work.
- b. Verification of certification, listing or label compliance with FM-01.
- c. Verification of proper storage and handling of insulation and vapor retarder materials before, during, and after installation.
- d. Inspection of vapor retarder application, including edge envelopes and mechanical fastening.
- e. Inspection of mechanical fasteners; type, number, length, and spacing.
- f. Coordination with other materials, cants, sleepers, and nailing strips.
- g. Inspection of insulation joint orientation and laps between layers, joint width and bearing of edges of insulation on deck.
- h. Installation of cutoffs and proper joining of work on subsequent days.
- i. Continuation of complete roofing system installation to cover insulation installed same day.

Indefinite Delivery Contract for Roofing
Fort Bragg, NC

DACA21-03-R-0033

3.6 WARRANTY

The entire roofing system, insulation and modified bitumen system shall carry a twenty (20) year warranty issued by the same manufacturer.

END

SECTION 07311

ROOFING, STRIP SHINGLES

PART 1 GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 226	(1989) Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
ASTM D 3018	(1982) Class A Asphalt Shingles Surfaced With Mineral Granules
ASTM D 3462	(1987) Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules

UNDERWRITERS LABORATORIES, INC (UL)

UL 997	(Jul 1, 1981; 4th Ed; Rev thru Apr 28, 1986) Wind Resistance of Prepared Roof-Covering Materials
--------	--

1.3 SUBMITTALS - Manufacturer's Standard Details

1.4 DELIVERY AND STORAGE OF MATERIALS

Materials shall be delivered in manufacturer's unopened bundles and containers with the manufacturer's brand and name marked clearly thereon. Shingles shall be stored in accordance with manufacturer's printed instructions. Roll goods shall be stored on end in an upright position. Immediately before laying, roofing felt shall be stored for 24 hours in an area maintained at a temperature not lower than 50 degrees F.

PART 2 PRODUCTS

2.1 MATERIALS

Materials shall conform to the following requirements:

2.1.1 Asphalt-Saturated-Felt Underlayment

ASTM D 226, Type I.

2.1.2 Nails

In accordance with manufacturer's printed instructions.

2.1.3 Shingles

Shingles shall be organic mat type conforming to UL 997, inorganic mat type meeting the requirements of ASTM D 3018 and UL 997, or glass felt type meeting the requirements of ASTM D 3018, ASTM D 3462, and UL 997. Shingles shall be approximately 12 by 36 inches in dimension and 3-tab design. Color of shingles shall be in accordance with Fed. Standard Colors and shall be selected from a full range of manufacturer's colors. Inorganic shingles shall be Type I, weighing not less than 210 pounds per square. Glass felt shingles shall be Type I, weighing not less than 225 pounds per square.

PART 3 EXECUTION

3.1 PREPARATION OF SURFACES

The construction of any bay or section of roof decking shall be completed before roofing work is started. Roof surfaces shall be smooth, firm, dry, and free from loose boards, large cracks, and projecting ends that might damage the roofing. Vents and other projections through roofs shall be properly flashed and secured in position, and projecting nails shall be driven firmly home.

3.2 APPLICATION OF ROOFING

3.2.1 Flashings

Metal flashings shall conform to Section 07600 SHEET METALWORK, GENERAL. Metal flashings shall be provided at the intersections of roofs and adjoining walls and at projections through the deck such as chimneys and vent stacks. Valley flashing may be of the open, closed cut, or woven type.

3.2.2 Metal Drip Edges

Metal drip edges, made of noncorrodible, nonstaining metal shall be provided along the eaves and rakes. The metal drip edge shall be applied directly over the underlayment along the rakes and directly on the wood deck at the eaves. Metal drip edges shall extend back from the edge of the deck not more than 3 inches and shall be secured with compatible nails spaced not more than 10 inches on center along the inner edge.

3.2.3 Underlayment

Before any shingles are applied, a single layer of asphalt-saturated-felt underlayment shall be applied to the roof deck sheathing. In areas subject to ice damming, use a special waterproofing shingle underlayment, applied in accordance with the manufacturer's printed instructions.

3.2.4 Shingles

Shingles shall be applied in accordance with the manufacturer's printed instructions as they appear on the bundle wrapping.

PART 4 - WARRANTY

A twenty (20) year manufacturer's guarantee is required.

** End of Section **

SECTION 07414

CLAY ROOF TILE

PART 1 - GENERAL

1. GENERAL:

Contract drawings indicate extent and general assembly details of the clay roof tiles. Members and connections not indicated on the drawings shall be in strict accordance with the manufacturers' printed instructions.

1.1 System Design: All components of the clay tile roofing system shall match the existing mission clay tile system presently installed on certain portions of the roof. New materials obtained from Ludowici-Celadon, Inc., New Lexington, Ohio. Ludowici-Celadon is shown here as a standard of quality; other manufacturers meeting this specification will be considered.

1.2 The design loads shall meet all State of North Carolina Building Code requirements. NOTE: The basic wind velocity, roof or snow load, and load combinations for Cumberland County must be met along with a U.L. uplift classification Class 90 rating.

2. SHOP DRAWINGS shall be submitted for approval in accordance with Section 01330 SUBMITTAL PROCEDURES. Shop drawings shall consist of catalog cuts, design and erection drawings, and other data as necessary to clearly describe design, materials, sizes, layouts, construction details, fasteners, and erection. Shop drawings shall be accompanied by engineering design calculations for the structural properties of the roofing .

3. SAMPLES AND DESCRIPTIVE DATA: The following shall be submitted for approval:

3.1 Tile Sections: One sample of each type of tile - field, hip and ridge sections, parapet cap sections, flashing, trim, closures, caps and similar items. Size shall be sufficient to show construction and configuration.

3.2 Fasteners: Two samples of each type to be used with statement regarding intended use.

3.3 Insulation: One piece of each type to be used, and descriptive data covering installation.

3.4 Gaskets and Insulating Compounds: Descriptive data.

3.5 Sealant: One sample, approximately 1 pound, and descriptive data.

4. DELIVERY AND STORAGE: Materials shall be delivered to the site in an undamaged condition and stored out of contact with the ground. Materials shall

be covered with weathertight coverings and kept dry. Storage accommodations for roof shall provide good air circulation and protection from surface staining.

PART 2 - PRODUCTS

5. STRAIGHT BARREL MISSION TILE shall be unglazed fired clay. The tile product shall be incombustible with a low moisture absorption rate of less than 1% to no more than 3% (ASTM C-67) with an average weight of 1250 lbs/sq. Color and texture shall match existing reused tile.

5.1 Underlayment: No 43 asphalt impregnated roofing felt or No. 40 coated base sheet.

5.1.1 Roofing nails: Corrosion-resistant, 12 gauge, 3/8" head standard roofing nails.

5.2 Wood Stringers: 1" treated wood stringers.

5.3 Flashings: 16 oz. copper.

5.4 Adhesives: Plastic cement shall be non-running, heavy-body flashing cement composed of mineral ingredients meeting ASTM D-4586.

6. FASTENERS:

6.1 All connections of the clay tiles shall be in strict accordance with the manufacturers' printed instructions.

7. ACCESSORIES:

Accessories shall be as standard with the clay tile roofing manufacturer unless otherwise noted.

PART 3 - EXECUTION

8. SYSTEM INSTALLATION:

8.1 All installation shall be in strict accordance with the manufacturers' written instructions. Ludowici-Celadon provides a written manual covering Product Information, Construction Details, and Application Instructions. The contractor must follow these instructions.

END

SECTION 07415

METAL ROOFING, FACTORY-COLOR-FINISHED

PART 1 GENERAL

This section of specification shall apply for repairs and/or total replacement of roof systems.

1.1 SUMMARY

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ALUMINUM ASSN (AA)

AA-01	(Aug 1980; 3rd Ed) Aluminum Construction Manual Series - Section 5, Specifications for Aluminum Sheet Metal Work in Building Construction
AA-02	(Dec 1984; 8th Ed) Aluminum Standards & Data
AA-04	(Dec 1986; 5th Ed) Aluminum Construction Manual Series - Section 1, Specifications for Aluminum Structures

AMERICAN IRON AND STEEL INSTITUTE (AISI)

AISI-01	(1987) Cold-Formed Steel Design Manual
---------	--

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 446	(1987) Steel Sheet, Zinc-Coated Galvanized) by the Hot-Dip Process, Structural (Physical) Quality
ASTM A 463	(1985) Steel Sheet, Cold-Rolled, Aluminum-Coated, Type 1 and Type 2
ASTM A 792	(1986) Steel Sheet, Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
ASTM B 117	(1985) Salt Spray (Fog) Testing
ASTM B 209	(1989) Aluminum and Aluminum-Alloy Sheet and

Plate

ASTM C 518	(1985) Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
ASTM D 523	(1985) Specular Gloss
ASTM D 659	(1986) Evaluating Degree of Chalking of Exterior Paints
ASTM D 714	(1987) Evaluating Degree of Blistering of Paints
ASTM D 968	(1981; R 1986) Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D 1654	(1979a; R 1984) Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
ASTM D 1737	(1985) Elongation of Attached Organic Coatings with Cylindrical Mandrel Apparatus
ASTM D 2244	(1985) Calculation of Color Differences from Instrumentally Measured Color Coordinates
ASTM D 2247	(1987) Testing Water Resistance of Coatings in 100% Relative Humidity
ASTM D 2794	(1984) Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
ASTM D 3359	(1987) Measuring Adhesion by Tape Test
ASTM G 23	(1989) Operating Light-Exposure Apparatus (Carbon-Arc Type) with and without Water for Exposure of Nonmetallic Materials

FEDERAL SPECIFICATIONS (FS)

FS HH-I-558	(Rev B; Am 3) Insulation, Blocks, Boards, Blankets, Felts, Sleeving (Pipe and Tube Covering), and Pipe Fitting Covering, Thermal (Mineral Fiber, Industrial Type)
-------------	---

UNDERWRITERS LABORATORIES, INC (UL)

UL 580	(May 17, 1988; 3rd Ed) Test for Uplift Resistance of Roof Assemblies
--------	--

1.3 DESIGN REQUIREMENTS

Contract drawings indicate extent and general assembly details of the metal roofing. Members and connections not indicated on the drawings shall be designed by the Contractor. All roofing panels, components, transitions, and assemblies shall be the products of the same manufacturer. Roofing shall be designed to provide the minimum section properties shown. Roof system shall comply with UL wind uplift Class 90 requirements as defined in UL 580. Steel covering shall be designed in accordance with AISI-01. Aluminum covering shall be designed in accordance with AA-01, AA-02, AA-04.

1.4 SUBMITTALS

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-31, Detail Drawings

Detail drawings shall consist of catalog cuts, design and erection drawings, shop coating and finishing specifications, and other data as necessary to clearly describe design, materials, sizes, layouts, construction details, fasteners, and erection. Detail drawings shall be accompanied by engineering design calculations for the structural properties of roofing and siding units. Section modulus and moment of inertia of steel sheet shall be determined in accordance with AISI-01. Section modulus and moment of inertia of aluminum sheet shall be determined for actual cross section dimensions by the conventional methods for actual design stresses and by effective width concept for deflection in accordance with AA-04.

SD-50, Samples

The following are required for approval:

- a. Accessories: One sample of each type of flashing, trim, closures, caps and similar items. Size shall be sufficient to show construction and configuration.
- b. Covering, Roof: One piece of each type to be used, 9 inches long, full width, accompanied by certified laboratory test reports showing that the sheets to be furnished are produced under a continuing quality control program and that a representative sample has been tested and has met the quality standards specified for factory color finish in paragraph "ROOF PANELS."
- c. Fasteners: Two samples of each type to be used with statement regarding intended use.
- d. Insulation: One piece of each type to be used, and descriptive data covering installation.

- e. Gaskets and Insulating Compounds: Descriptive data.
- f. Sealant: One sample, approximately 1 pound, and descriptive data.

1.5 DELIVERY AND STORAGE

Materials shall be delivered to the site in a dry and undamaged condition and stored out of contact with the ground. Materials shall be covered with weathertight coverings and kept dry. Storage accommodations for roof covering shall provide good air circulation and protection from surface staining.

PART 2 PRODUCTS

2.1 ROOF PANELS

Roof panels shall be either steel or aluminum and shall have a factory color finish meeting the requirements specified below. System for securing the roof covering to structural framing members shall be concealed clip fastening system with nonpenetrating fasteners. Concealed clip-fastened roof covering shall be snap-lock mechanically field crimped standing seam type. Roof covering using concealed clip fastener system shall have no fasteners penetrating the panels except at the ridge, eave and end laps. The ridge shall not have exposed fasteners. Length of sheets shall be sufficient to cover the entire length of any unbroken roof slope such slope is 30 feet or less. When length of run exceeds 30 feet, each sheet in the run shall extend over two or more spans. Sheets longer than 30 feet may be furnished if approved by the Contracting Officer. Width of sheets with overlapping configurations shall provide not less than 18 inches of coverage in place; width of sheets with interlocking ribs shall provide no less than 12 inches of coverage in place. Standing ribs of interlocking panels for adjacent roof sheets shall be not less than three (3) inch. Design provisions shall be made for expansion and contraction at either ridge or eave, or both, consistent with the type of system to be used. All sheets shall be square-cut.

2.1.1 Steel Panels

Steel panels shall be zinc-coated steel conforming to ASTM A 446, G 90 coating designation, aluminum-zinc alloy coated steel conforming to ASTM A 792, AZ 50 coating, or aluminum-coating steel conforming to ASTM A 463, Type 2, coating designation T2 65. Roof panels shall be 0.023 inch thick minimum.

2.1.2 Aluminum Panels

Aluminum panels shall be aluminum alloy conforming to ASTM B 209, temper as required for the forming operation, minimum 0.023 inch thick.

2.2 FACTORY COLOR FINISH

Roof panels shall have a factory color finish on the exposed side. The exterior finish shall consist of either a synthetic resin base coating applied to a cleaned, pretreated and primed surface, or a dry film coating bonded by adhesive to a cleaned metal substrate. Color shall be as selected from the manufacturer's standard color. The dry film thickness of the exterior coating shall be not less than 0.8 mil, exclusive of the primer. The interior color finish shall consist of the same coating and dry film thickness of as the exterior. The exterior color finish shall meet the test requirement specified below. The manufacturer shall have conducted tests on previously manufactured sheets of the same type and finish as proposed for the project. The term "appearance of base metal" refers to the metal coating on steel or the aluminum base metal.

2.2.1 Salt Spray Test

A sample of the sheets shall withstand a salt spray test for a minimum of 1000 hours in accordance with ASTM B 117, including the scribe requirement in the test. Immediately upon removal of the panel from the test, the coating shall receive a rating of 10, no blistering, as determining by ASTM D 714; and rating of 7, 1/16 inch failure at scribe, as determined by ASTM D 1654.

2.2.2 Formability Test

When subjected to a 180-degree bend over a 3/8-inch diameter mandrel in accordance with ASTM D 1737 exterior coating film shall show no evidence of fracturing to the naked eye.

2.2.3 Accelerated Weathering, Chalking Resistance and Color Change

A sample of the sheets shall withstand a weathering test a minimum of 2000 hours in accordance with ASTM G 23 using a Type D apparatus, without cracking, peeling, blistering, loss of adhesion of the protective coating, or corrosion of the base metal. Protective coating that can be readily removed from the base metal with tape in accordance with ASTM D 3359, Test Method B, shall be considered as an area indicating loss of adhesion. After the 2000-hour weatherometer test, exterior coating shall not chalk greater than No. 8 rating in accordance with ASTM D 659 test procedures. After the 2000-hour weatherometer test, exterior coating color change shall not exceed 2 NBS units in accordance with ASTM D 2244.

2.2.4 Humidity Test

When subjected to a humidity cabinet test in accordance with ASTM D 2247 for 1000 hours, a scored panel shall show no signs of blistering, cracking, creepage or corrosion.

2.2.5 Impact Resistance

Factory-painted sheet shall withstand direct and reverse impact in accordance with ASTM D 2794 equal to 1.5 times metal thickness in mils, expressed in inch-pounds, with no loss of adhesion.

2.2.6 Abrasion Resistance Test

When subjected to the falling sand test in accordance with ASTM D 968 the coating system shall withstand a minimum of 30 liters of sand before the appearance of the base metal.

2.2.7 Specular Glass

Finished surfaces shall have a specular gloss value of 30 to 70 at an angle of 60 degrees when measured in accordance with ASTM D 523.

2.3 ACCESSORIES

Accessories shall be compatible with the covering furnished. Flashing, trim, molded closure strips, caps, and similar metal accessories shall be not less than the minimum thicknesses specified for covering. Exposed metal accessories shall have a factory color finish to match the panels furnished. Molded closure strips shall be closed-cell or solid-cell synthetic rubber or neoprene, or polyvinyl chloride premolded to match configuration of the covering and shall not absorb or retain water. Thermal spacer blocks and other thermal barriers at concealed clip fasteners shall be as recommended by the manufacturer.

2.4 FASTENERS

Fasteners shall be zinc-coated steel, aluminum, corrosion resisting steel, or nylon capped steel, type and size specified below or as otherwise approved for the applicable requirements. Aluminum or corrosion resisting steel fasteners shall be used only with aluminum sheets or aluminum-zinc alloy coated sheets. Exposed fasteners shall be gasketed or have gasketed washers on the exterior side of the covering to waterproof the penetration. Washer material shall be compatible with the covering; have a minimum diameter of 3/8 inch for structural connections; and gasketed portion of fasteners or washers shall be neoprene or other equally durable elastomeric material approximately 1/8 inch thick. Fasteners used for structural connectors may be the same fasteners used for holding laps, except that they shall provide both tensile and shear strength of not less than 750 pounds per fastener. Exposed wall fasteners shall be color finished or provided with plastic color caps to match the covering. Nonpenetrating fastener system using concealed clips shall be manufacturer's standard for the system provided.

2.4.1 Screws

Screws shall be not less than No. 14 diameter if self-tapping type and not less than No. 12 diameter if self-drilling and self-tapping type.

2.4.2 Rivets

Blind rivets shall be aluminum with 3/16-inch nominal diameter shank or stainless steel with 1/8-inch nominal diameter shank. Rivets shall be threaded stem type if used for other than the fastening of trim. Rivets with hollow stems shall

have closed ends.

2.5 INSULATION

Thermal resistance of insulation shall be not less than the R-values shown. R-values shall be determined at 75 degrees F in accordance with ASTM C 518. Insulation shall be a standard product of a manufacturer, factory-marked or identified with manufacturer's name or trademark and R-value. Identification shall be on individual pieces or individual packages.

2.5.1 Rigid or Semirigid Board Insulation

Rigid or semirigid board insulation shall conform to FS HH-I-558, Form A, Class 1 or Class 2. Exposed insulation shall have a white nondusting and nonshedding finish.

2.5.2 Blanket Insulation

Blanket insulation FS HH-I-558, Form B, Type I, Class 6, faced.

2.6 INSULATION RETAINERS

Insulation retainers shall be type, size, and design necessary to hold the insulation adequately and to provide a neat appearance. Metallic retaining members shall be nonferrous or have a nonferrous coating. Nonmetallic retaining members, including adhesives used in conjunction with mechanical retainers or at insulation seams, shall have a fire resistance classification not less than that permitted for the insulation.

2.7 SEALANT

Sealant shall be an electromeric type containing no oil or asphalt. Exposed sealant shall cure to a rubberlike consistency. Concealed sealant may be the nonhardening type. Sealant for standing seam panels shall be factory applied and shall conform to the manufacturer's recommendations.

2.8 GASKETS AND INSULATING COMPOUNDS

Gaskets and insulating compounds shall be nonabsorptive and suitable for insulating contact points of incompatible materials. Insulating compounds shall be nonrunning after drying.

PART 3 EXECUTION

3.1 INSTALLATION

Installation shall be as specified and in accordance with the approved erection instructions and drawings. Finished structure shall be proven weathertight.

Dissimilar materials which are not compatible when contacting each other shall be insulated from each other by means of gaskets or insulating compounds. Improper or mislocated drill holes shall be plugged with an oversize screw fastener and gasketed washer; however, sheets with an excess of such holes or with such holes in critical locations shall not be used. Exposed surfaces and edges shall be kept clean and free from sealant, metal cuttings, hazardous burrs, and other foreign materials. Stained, discolored, or damaged sheets shall be removed from the site.

3.1.1 Roof Covering Installation

Roof covering shall be applied with the longitudinal configurations in the direction of the roof slope. Method of applying joint sealant shall conform to the manufacturer's recommendation. Accessories shall be fastened into framing members, except as otherwise approved. Closure strips shall be provided as indicated and where necessary to provide weathertight construction.

3.1.1.1 Lap Type Panels with Exposed Fasteners

End laps shall be made over framing members with fasteners into framing members approximately 2 inches from the end of the overlapping sheet. Side laps shall be laid away from the prevailing winds. Side and end lap distances and fastening and spacing of fasteners shall be in accordance with TABLE I at the end of this paragraph. Side laps and end laps of roof covering and joints at accessories shall be sealed. Fasteners shall be installed in valleys or crowns as recommended by the covering manufacturer. Fasteners shall be installed in straight lines within a tolerance on 1/2 inch in the length of a bay. Fasteners shall be driven normal to the surface and to a uniform depth to seat the gasketed washers properly.

TABLE I. SHEET LAP AND FASTENER SPACING

Sheet Lap	Roofing
Ends (inches)	9
Sides (corrugations)	2-1/2
Fastener Spacing	
Plain ends (inches o.c.)	8
Lapped ends (inches o.c.)	8
Lapped sides (inches o.c.)	12
Intermediate supports (inches o.c.)	8
Flashings (inches o.c.)	12

Lapping and fastener requirements listed in the table are based on standard corrugated sheets and providing protection against leakage. Sheets of configurations other than standard corrugated shall have laps and fastener spacing providing an equivalent installation.

3.1.1.2 Concealed Fastener Wall Panels

Panels shall be fastened to framing members with concealed fastening clips or other concealed devices standard with the manufacturer. Spacing of fastening clips and fasteners shall be in accordance with the manufacturer's written instructions insofar as the maximum fastener spacings specified are not exceeded and provided such standard practice will result in a structure which will be free from water leaks and meet design requirements. Spacing of fasteners and anchor clips along the panel interlocking ribs shall not exceed 12 inches on center except when otherwise approved. Fasteners shall not puncture covering sheets except as approved for flashing, closures, and trim; exposed fasteners shall be installed in straight lines. Interlocking ribs shall be sealed with factory-applied sealant. Joints at accessories shall be sealed.

3.1.1.3 Concealed Clip, Standing Seam Roof Panels

Roof and fascia panels shall be fastened to framing members with concealed fastening clips or other concealed devices standard with the manufacturer. Spacing of clips and fasteners shall be in accordance with the manufacturers written instructions. End laps, when approved by the Contracting Officer, shall be made over framing members. Fasteners shall not puncture covering sheets except as approved for flashing, closures, and trim. Exposed fasteners shall be installed in straight lines. Interlocking ribs shall be sealed if standard with or recommended by the manufacturer. End laps of covering sheets and joints at accessories shall be sealed. Seams between roof panels shall be mechanically field formed with a seamer at the project site.

3.2 INSULATION INSTALLATION

Insulation shall be installed as indicated and in accordance with manufacturer's instructions. Joints shall be tight and sealed as required by the manufacturer.

Final appearance of installed insulation shall be free of unsightly sags and wrinkles.

** End of Section **

SECTION 07510

BUILT-UP ROOFING

PART 1 GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 208	(1972; R 1982) Insulating Board (Cellulosic Fiber), Structural and Decorative
ASTM D 41	(1985) Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
ASTM D 43	(1973; R 1988) Creosote Primer Used in Roofing, Dampproofing and Waterproofing
ASTM D 226	(1989) Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
ASTM D 312	(1984) Asphalt Used in Roofing
ASTM D 517	(1970; R 1981) Asphalt Plank
ASTM D 1668	(1986) Glass Fabrics (Woven and Treated) for Roofing and Waterproofing
ASTM D 1863	(1986) Mineral Aggregate Used on Built-Up Roofs
ASTM D 2822	(1975; R 1988) Asphalt Roof Cement
ASTM D 3617	(1983) Sampling and Analysis of New Built-Up Roof Membranes
ASTM D 3672	(1986) Venting Asphalt-Saturated and Coated Inorganic Felt Base Sheet Used in Roofing
ASTM D 3909	(1986) Asphalt Roll Roofing (Glass Felt) Surfaced With Mineral Granules
ASTM D 4022	(1981) Coal Tar Roof Cement

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-64, Quality Assurance Plan

The CQC procedure for roofing installation shall be submitted for approval prior to the start of roofing work.

SD-76, Certificates of Compliance

Certificates of Compliance shall be submitted for felts and bitumens.

SD-91, Records

Bills of lading shall indicate the flash point and equiviscous temperature (EVT) or this information shall be shown on labels for each container of asphalt.

1.4 STORAGE OF MATERIALS

Felts, fabrics, and roll roofing shall be kept dry before, during, or after delivery to the site and shall be stored in an enclosed building or in a closed trailer, and stored on end one level high. Felt rolls shall be maintained at a temperature above 50 degrees F for 24 hours immediately before laying. Aggregate shall be kept dry as defined by ASTM D 1863.

1.5 COORDINATION REQUIREMENTS

The entire roofing system, excluding flood coat and aggregate surfacing, shall be finished in one operation up to the line of termination at end of day's work. Glaze coating shall be used to waterproof completed sections when more than one day is required to finish the roofing. Phased construction will not be permitted.

1.5.1 Insulation

Application of roofing shall immediately follow application of insulation as a continuous operation. Roofing operations shall be coordinated with insulation work so that all roof insulation applied each day is waterproofed the same day. Insulation is specified in Section 07220 INSULATION FOR ROOFING.

1.5.2 Flashings

Bituminous flashings in accordance with these specifications shall be used throughout unless otherwise specified or indicated.

1.5.3 Sheet Metalwork

Roofing operations shall be coordinated with sheet metalwork so that sheet metal items are installed to permit continuous roof surfacing operations the same day felts are installed. Sheet metalwork is specified in Section 07600 SHEET METALWORK, GENERAL.

1.6 ENVIRONMENTAL CONDITIONS

Air temperature shall be above 40 degrees F and there shall be no visible ice, frost, or moisture on the roof deck at the time roofing is installed.

PART 2 PRODUCTS

Roofing materials shall conform to the following requirements:

2.1 PRIMER

ASTM D 41 for asphalt roofing systems; ASTM D 43 for coal-tar roofing systems.

2.2 BITUMEN

2.2.1 Asphalt

ASTM D 312, Type I or II on slopes from 1/4 inch per foot up to and including 2 inch per foot; Type II or Type III on slopes above 2 inch per foot up to and including 1 inch per foot; Type III on slopes above 1 inch per foot up to and including 3 inches per foot.

2.3 BITUMINOUS CEMENT

ASTM D 2822 for use with asphalt roofing systems and ASTM D 4022 for use with coal-tar roofing systems.

2.4 CANTS

Cants shall be made from treated wood or treated fiberboard not less than 4 inches high and cut to reduce change in direction of the membrane to 45 degrees or less. Treated wood shall be of water-borne preservative-treated material as specified in Section 06100 ROUGH CARPENTRY. Fiberboard shall conform to ASTM C 208 treated with sizing, wax or bituminous impregnation.

2.5 FELT

2.5.1 Venting Inorganic Base Sheet

ASTM D 3672, Type II.

2.5.2 Omitted

2.5.3 Organic Felt

ASTM D 226 for use with asphalt roofing system. Organic felts may be used only for bitumen stops, flashings, and edge envelopes.

2.6 MINERAL-SURFACED ROLL ROOFING

ASTM D 3909.

2.7 NAILS AND FASTENERS

Nails and fasteners shall be an approved type recommended by the roofing felt manufacturer.

2.8 AGGREGATE SURFACING MATERIALS

Crushed stone, gravel, or crushed slag conforming to ASTM D 1863. Subject to approval, other materials may be used when blended to the grading requirements to ASTM D 1863.

2.9 WALKWAY SURFACES

2.9.1 Mineral Asphalt Plank

ASTM D 517, minimum 3/4 inch thick.

2.9.2 Concrete Slab

Concrete, 3000 psi per Section 02511 CONCRETE FOR SIDEWALKS, CURBS & GUTTERS, 12 by 24 by 2-1/2 inches.

2.10 WOVEN GLASS FABRIC

ASTM D 1668, Type I for asphalt roofing systems.

2.11 INSULATION

Insulation shall be composite board, expanded perlite, polyurethane, mineral fiber, polyisocyanurate, or phenolic, as specified in Section 07220 ROOF INSULATION. Top layer shall be minimum 3/4 inch thick mineral fiber or perlite.

PART 3 EXECUTION

3.1 PREPARATION REQUIREMENTS

Roofing applied directly on concrete shall not be scheduled until frothing or bubbling does not occur when hot bitumen is applied to the concrete and until the hot bitumen sticks tightly to the concrete. Vents and other items penetrating the roof shall be secured in position and properly prepared for flashing. Nailers, curbs and other items attached to roof surface shall be in place before roofing is begun.

3.2 INSTALLATION OF CANTS

Cants shall be installed in the angles formed between the roof and walls or other vertical surfaces. Cants shall be laid in a solid coat of bituminous cement just prior to laying the roofing plies. Cants shall be continuous, and shall be installed in lengths as long as practicable. Cants specified in this section are not required at locations where cast-in-place cants, specified under other sections, are integrally formed with the structural deck or roof fill.

3.3 CONDITION OF SURFACES

Surfaces shall be inspected and approved immediately prior to application of roofing and flashings. The roofing and flashings shall be applied to a smooth and firm surface free from ice, frost, visible moisture, dirt, projections, and foreign materials. Prior to application of primer on precast concrete decks, joints shall be covered with a 4-inch strip of roofing felt, embedded in and coated with bituminous cement.

3.4 MECHANICAL APPLICATION DEVICES

Mechanical application devices shall be mounted on pneumatic-tired wheels, and shall be designed and maintained to operate without damaging the insulation, roofing membrane, or structural components.

3.5 PRIMING

Concrete surfaces to receive bitumen shall be uniformly coated with primer at a rate of not less than 1 gallon per square and allowed to dry. Primer shall be compatible with the bitumen to be used.

3.6 HEATING OF BITUMEN

Asphalt shall not be heated higher than 75 degrees F above the EVT or 50 degrees below the flash point or 525 degrees F (maximum) whichever is lower. EVT and flash point temperatures of asphalt in the kettle shall be conspicuously posted on the kettle. Coal tar bitumen shall not be heated above 425 degrees F. Heating kettles shall be provided with automatic thermostatic controls and an accurate thermometer. Kettle operators shall be in attendance at all times

during the heating to insure that the maximum temperature specified is not exceeded. Equipment utilizing flame-heat shall not be placed on the roof.

3.7 BITUMEN STOPS

Bitumen stops shall be installed at roof edges, openings and vertical projections before application of roofing plies. Bitumen stops shall be formed of two 18-inch wide strips of organic felt. Nine inches of the width shall be attached to the roof surface with 9 inches extending beyond the edge. The first strip shall be applied in a 9-inch wide layer of bituminous roofing cement and nailed 2 inch from the roof edge at 6-inch spacing. The second strip shall be applied to the first in a 9-inch wide mopping of bitumen. The free portion of each strip shall be protected from damage throughout the roofing period. After the roofing plies are in place, the free portion of each strip shall be folded back over the roofing membrane and embedded in a continuous coating of bituminous cement and secured with roofing nails spaced 3 inches on centers.

3.8 BITUMEN APPLICATION

Asphalt shall be applied within a range of 25 degrees F below to 25 degrees F above the EVT. Temperature of coal-tar bitumen at the time it is applied shall be in accordance with the bitumen manufacturer's recommendations. Application temperatures shall be measured at the mop bucket or mechanical applicator. Bitumen at a temperature below the recommended temperature shall be returned to the kettle. Each layer of felt shall be laid in not less than 20 pounds or more than 35 pounds of asphalt per square or not less than 30 pounds or more than 35 pounds of coal-tar bitumen per square. Where solid moppings are required, the following requirements as evidenced in any one roof cut-out sample shall apply:

- a. There shall be no overlaying voids.
- b. Length of any void encapsulated in bitumen shall not exceed 1 inch.
- c. Total length of all voids encapsulated in bitumen shall not exceed 2 inches in any one ply.
- d. Length of any dry void shall not exceed 1/4 inch.
- e. Total length of all dry voids shall not exceed 2 inch in any one ply.

3.9 APPLICATION OF FELTS

All felt plies shall be laid at right angles to the slope of the deck with minimum 6-inch end laps staggered at least 12 inches. The full 36-inch width of each ply shall be placed in hot bitumen immediately behind the applicator. A squeegee shall be used to eliminate air pockets and obtain complete adhesion between plies. Bitumen shall be visible beyond all edges of each ply as it is being installed. Plies shall be laid free of wrinkles, creases or fishmouths. Each layer of roofing felt shall be carried up abutting surfaces at least 4 inches or to 2 inches above the cant strip. Workers shall not walk on mopped surfaces when the bitumen is sticky. For slopes exceeding 2 inch per foot, each felt ply other than venting base sheet, shall be nailed 2 inches and 6 inches from upper edge with nails spaced 12 inches on centers in each row.

3.9.1 On Gypsum, Lightweight Concrete or Insulating Concrete Surfaces

One ply of venting inorganic base sheet shall be laid, shingle fashion, without mopping and with each sheet lapping 4 inches over the previous sheet. Each base sheet shall be nailed or fastened at 9 inch intervals along laps. Each base sheet

shall also be nailed in two rows, 11 inches apart, with nails spaced 18 inches on centers in each row and staggered down the centers of the sheets. Three plies of glass roofing felts shall be immediately placed shingle-fashion in solid mopped bitumen over the base sheet. Felts shall be applied in 36 inch widths with 24-2/3 inch side laps and starter sheets 12, 24 and 36 inches wide along eaves to maintain 3 full plies over the base sheet.

3.9.2 On Concrete or Insulation Surfaces

Four plies of 36 inch wide glass roofing felts shall be placed shingle-fashion in solid mopped bitumen with 27-1/2 inch side laps and starter sheets 9, 18, 27 and 36 inches wide along eaves to maintain 4 full plies throughout the roofing.

3.10 MECHANICAL FASTENING

Nails and fasteners for securing roofing shall be flush-driven through flat metal disks of not less than 1-inch diameter. Metal disks may be omitted where heads of fasteners are equivalent in size to the 1-inch diameter disks. Fasteners, when required, shall be spaced within 20 percent of the indicated spacing dimensions.

There shall be no less than the total number of indicated fasteners in any 100 square feet area. Fastener pull-out resistance shall be not less than 40 pounds each.

3.11 PROTECTION OF APPLIED ROOFING

At end of day's work or whenever precipitation is imminent, the terminated edge of built-up roofing shall be sealed with two full width strips of roofing felt set in and coated with bituminous cement. One half-width of strips shall be extended up and over the finished roofing and the other half-width extended out and onto the bare roof deck. Sealing strips shall be removed before continuing installation of roofing. To facilitate sealing, termination edges may be straightened with pieces of insulation board which shall be removed when work is resumed.

3.12 FLASHINGS

Flashings shall be provided over cants in the angles formed at walls and other vertical surfaces and where required to make the work watertight. Bituminous flashings described below shall be used, except where metal flashings are specified in other sections of the specifications. Flashings shall be provided and installed immediately after the top ply of felt is placed.

3.12.1 Base Flashings

Base Flashings shall be a three-ply system using woven glass fabric with mineral surfaced roll roofing as the outer ply. The top of the base flashing shall be at least 8 inches above the roof membrane surface. Mineral surfaced roofing strips shall be cut from the width of the rolls, and shall extend from the sheet-metal reglet or top of curb onto the roof at least 2 inches beyond the widest flashing ply. Mineral surfaced strips shall be installed with selvage edges at right angles to the cant. Selvage laps shall be well cemented, and where possible, shall be shingled in a direction down slope or away from the prevailing wind. The top edge of all base flashing systems shall be nailed a maximum of 8 inches on center.

3.12.2 Strip Flashings

Sheet metal flashings, and gravel stops installed over the roofing top ply as required by other section of the specifications, shall be strip flashed with 2

layers of roofing felt, 9 and 12 inches wide and successively cemented in place.

3.12.3 Valleys and Ridges

Felt plies shall continue across valleys and ridges and terminate approximately 12 inches from the valley or ridge. Exposed lap shall terminate on a line approximately 12 inches from, and parallel to the valley or ridge. Two plies of roofing felt, 9-inch wide bottom ply, and 12-inch wide top ply, shall be successively mopped-in over each felt line of termination.

3.13 WALKWAYS

Walkways shall be mineral-surfaced asphalt planks, back-mopped and embedded in the flood coat prior to aggregate surfacing and shall be located as indicated.

3.14 AGGREGATE SURFACING

After roofing felts have been laid and flashings installed, the roof surface, except for cants, shall be flood-coated uniformly with 60 pounds of hot asphalt per square, or 75 pounds of coal-tar bitumen per square if coal-tar roof system is used. While bitumen is still hot, aggregate surfacing materials shall be spread thereon at a rate of 400 pounds per square of gravel or 300 pounds per square of other approved surfacing aggregate.

3.15 GLAZE COAT

If there is a probability of rain falling on the felts before the flood coat and aggregate can be applied, a light glaze coat of bitumen, 10 to 15 pounds per square, shall be applied over the exposed felts. The glaze coat may be considered as part of the flood coat provided the surfacing operation is completed within 48 hours after application of the glaze coat. Where glaze coat is used, surface treatment shall be completed as soon as weather conditions permit.

3.16 ROOF CUT-OUT TESTS

Roof cut-out samples shall be taken and analyzed in accordance with ASTM D 3617 as directed by the Contracting Officer when there is reason to believe that deficiencies exist in the roofing membrane. When samples indicate deficiencies in the built-up roofing, corrective action shall be taken as directed.

3.17 CONTRACTOR QUALITY CONTROL

The Contractor shall establish and maintain a quality control procedure to assure compliance of the installed roofing with the contract requirements. Any work found not to be in compliance with the contract shall be promptly removed and replaced or corrected in an approved manner. Quality control shall include, but not be limited to, the following:

- a. Observation of environmental conditions; number and skill level of roofing workers; start and end time of various tasks; condition of substrate.
- b. Verification of compliance of materials before, during, and after installation.
- c. Inspection of condition of equipment and accuracy of thermometers and metering devices.
- d. Inspection of flashings, cants and curbs.

- e. Inspection of membrane placement, including edge envelopes, widths of starter sheets, laps, proper use of squeegee, and mechanical fastening.
- f. Inspection of application of bitumen, aggregate, and walkways.
- g. Inspection of embedment of aggregate for required weight and coverage.
- h. Cutout sampling and analysis as directed.

** End of Section **

SECTION 07511

MULTI-PLY MODIFIED BITUMEN ROOFING SYSTEM

PART 1 GENERAL

1.1 SUMMARY

It is the intent of this section to install a total/patch roof system - including insulation and high density fiberboard - supplied by one manufacturer. Work this section with Section 07220 - ROOFING INSULATION. In general, the System shall be as follows:

- a. Preparation of existing substrate lightweight concrete on metal deck. Preparation shall be in strict accordance with manufacturer's recommendations.
- b. Mechanically attached Polyisocyanurate Insulation - flat and tapered. Install, if required by the manufacturer, a sub-sheet between the concrete deck and insulation; eg. 6 mil poly.
- c. Mechanically attached High-density Fiberboard
- d. Multi-ply Modified Bitumen Roofing consisting of:
 - 1st Ply. Smooth surfaced, poly-ester reinforced modified bitumen membrane that requires a field applied coating.
 - 2nd Ply. Granule surfaced, fire-retardant, fiberglass-reinforced membrane.

1.2 REFERENCES (Not Applicable)

1.3 SUBMITTALS

The following shall be submitted:

Quality Assurance Plan

The CQC procedure for roofing installation shall be submitted for approval prior to the start of roofing work.

Certificates of Compliance

Certificates of Compliance shall be submitted for sheets and bitumens.

Records

Bills of lading shall indicate the flash point and equiviscous temperature (EVT) or this information shall be shown on labels for each container of asphalt.

Field Trip Inspection Reports by the manufacturer's representative as required by the manufacturer to warrant the roofing system.

Manufacturer's Printed Instructions & Details

Complete sets of manufacturer's printed instructions, typical detail drawings and recommendations shall be submitted for reference by the Contracting Officer. A complete set of these documents shall be maintained at the job site for continuous reference at all times during the term of the work.

Certification of Workmanship and Materials

The Contractor shall certify that the workmanship and materials are in strict compliance with the manufacturer's recommendations, printed typical details and printed instructions.

1.4 STORAGE OF MATERIALS

Materials shall be kept dry before, during, or after delivery to the site and shall be stored in an enclosed building or in a closed trailer, and stored on end one level high. Rolls shall be maintained at a temperature above 50 degrees F for 24 hours immediately before laying.

1.5 COORDINATION REQUIREMENTS

The entire roofing system shall be finished in one operation up to the line of termination at end of day's work. Phased construction will not be permitted.

1.5.1 Insulation

Application of roofing shall immediately follow application of insulation as a continuous operation. Roofing operations shall be coordinated with insulation work so that all roof insulation applied each day is waterproofed the same day. Insulation is specified in Section 07220 ROOF INSULATION.

1.5.2 Flashings

Flashings in accordance with these specifications shall be used throughout unless otherwise specified or indicated.

1.5.3 Sheet Metalwork

Roofing operations shall be coordinated with sheet metalwork so that sheet metal items are installed to permit continuous roof surfacing operations the same day felts are installed. Sheet metalwork is specified in Section 07600 SHEET METALWORK, GENERAL.

1.6 ENVIRONMENTAL CONDITIONS

Air temperature shall be above 40 degrees F and there shall be no visible ice, frost, or moisture on the roof deck at the time roofing is installed.

PART 2 PRODUCTS

Roofing materials shall conform to the following requirements:

2.1 MODIFIED BITUMEN MEMBRANE

Modified Bitumen Membrane consists of a 170 g/m squared polyester mat coated on both sides with styrene butadiene styrene modified asphalt and surfaced with white ceramic granules.

2.1.1 Technical Specifications:

<u>Property</u>	<u>Test Method</u>	<u>Minimum Performance</u>
Material Thickness	Physical measure	150 mils
Breaking Strength	ASTM D412	600 psi
Ultimate Elongation (Elongation @ Break)	ASTM D412	80%
Water Resistance	ASTM D618, D570	<1.0 gram water absorp. <1% dim. change.
Low Temp. Flexibility	CGSB 37-GP-56M	Pass
Water Vapor		Transmission ASTM E96 (B) <1.0 gram/m squared @ 24 hrs.
Dynamic Impact Puncturing	ASTM D2240	Pass
Static Puncturing	CGSB 37-GP-56M	Pass
Lap Joint Strength	ASTM D412	Pass
Accelerated Weathering	ASTM G23 ASTM D2565	Pass
Crack Bridging Capability	ASTM C836	Pass
Granule Embedment	CGSB 37-GP-56M	Pass

2.2 BITUMEN

2.2.1 Asphalt

ASTM D 312, Type III or IV. Asphalt temperature at the point of application shall be a minimum of 400 deg. F or EVT +/- 25 deg. F, whichever is higher.

2.3 BITUMINOUS CEMENT

Per manufacturer's recommendations for use with modified bitumen roofing systems.

2.4 CANTS

Cants shall be made from fire-resistant, treated, perlite or fiberglass. Not less than 4 inches high and cut to reduce change in direction of the membrane to 45 degrees or less.

2.5 NAILS AND FASTENERS

Nails and fasteners shall be an approved type recommended by the roofing felt manufacturer.

2.6 INSULATION

See Section 07220, ROOFING INSULATION which is an integral part of this section.

PART 3 EXECUTION

3.1 PREPARATION REQUIREMENTS

The substrate construction of any bay or section of the building shall be completed before roofing work is begun thereon. Roofing material applied on lightweight insulating concrete shall not be scheduled until the insulating concrete passes an air-dry density test required by the manufacturer. Vents and other items penetrating the roof shall be secured in position and properly prepared for flashing. Nailers, curbs and other items attached to roof surface shall be in place before roofing is begun.

3.2 INSTALLATION OF CANTS

Cants shall be installed in the angles formed between the roof and walls or other vertical surfaces. Cants shall be laid and anchored as recommended by the manufacturer just prior to laying the roofing plies. Cants shall be continuous, and shall be installed in lengths as long as practicable.

3.3 CONDITION OF SURFACES

Surfaces shall be inspected and approved immediately prior to application of roofing and flashings. The roofing and flashings shall be applied to a smooth and firm surface free from ice, frost, visible moisture, dirt, projections, and foreign materials.

3.4 MECHANICAL APPLICATION DEVICES

Mechanical application devices shall be mounted on pneumatic-tired wheels, and shall be designed and maintained to operate without damaging the insulation, roofing membrane, or structural components.

3.5 PRIMING

Surfaces requiring priming shall be uniformly coated with primer as recommended by the manufacturer's printed instructions and details. The rate of application shall be as recommended by the manufacturer. Primer shall be compatible with the bitumen to be used.

3.6 HEATING OF BITUMEN

Unless otherwise recommended by the manufacturer, asphalt shall not be heated higher than 75 degrees F above the EVT or 50 degrees below the flash point or 525 degrees F (maximum) whichever is lower. EVT and flash point temperatures of asphalt in the kettle shall be conspicuously posted on the kettle. Kettle operators shall be in attendance at all times during the heating to insure that the maximum temperature specified is not exceeded. Equipment utilizing flame-heat shall not be placed on the roof.

3.7 BITUMEN STOPS

Bitumen stops shall be installed at roof edges, openings and vertical projections before application of roofing plies. Bitumen stops shall be formed as recommended by the manufacturer's printed written instructions and details.

3.8 BITUMEN APPLICATION

Asphalt shall be applied as recommended by the manufacturer's printed instructions and details. Bitumen at a temperature below the recommended temperature shall be returned to the kettle. Where solid moppings are required, the following requirements as evidenced in any one roof cut-out sample shall apply:

- a. There shall be no overlaying voids.
- b. Length of any void encapsulated in bitumen shall not exceed 1 inch.
- c. Total length of all voids encapsulated in bitumen shall not exceed 2 inches in any one ply.
- d. Length of any dry void shall not exceed 1/4 inch.
- e. Total length of all dry voids shall not exceed 1/2 inch in any one ply.

3.9 APPLICATION OF MEMBRANE PLY SHEETS

Application of ply sheets shall be in strict accordance with the modified bitumen manufacturer's printed instructions and detail drawings. Unless otherwise required by the manufacturer's instructions and details, all plies shall be laid at right angles to the slope of the deck with minimum 6-inch end laps staggered at least 12 inches. The full 36-inch width of each ply shall be placed in hot bitumen immediately behind the applicator. A squeegee shall be used to eliminate air pockets and obtain complete adhesion between plies. Bitumen shall be visible

beyond all edges of each ply as it is being installed. Sheets/plies shall be laid free of wrinkles, creases or fishmouths. Each layer of roofing sheet shall be carried up abutting surfaces at least 4 inches or to 2 inches above the cant strip. Workers shall not walk on mopped surfaces when the bitumen is sticky. For slopes exceeding $\frac{1}{4}$ inch per foot, each ply other than venting base sheet, shall be nailed 2 inches and 6 inches from upper edge with nails spaced 12 inches on centers in each row.

3.9.1 On Gypsum, Lightweight Concrete or Insulating Concrete Surfaces:

If required by the manufacturer, one ply of venting inorganic base sheet shall be laid, shingle fashion, without mopping and with each sheet lapping 4 inches over the previous sheet. Each base sheet shall be nailed or fastened at 9 inch intervals along laps. Each base sheet shall also be nailed in two rows, 11 inches apart, with nails spaced 18 inches on centers in each row and staggered down the centers of the sheets. Roofing sheets shall be immediately placed shingle-fashion in solid mopped bitumen over the base sheet. Sheets shall be applied in 36 inch widths with 24-2/3 inch side laps and starter sheets 12, 24 and 36 inches wide along eaves to maintain 3 full plies over the base sheet.

3.10 MECHANICAL FASTENING

Nails and fasteners for securing roofing shall be flush-driven through flat metal disks of not less than 1-inch diameter. Metal disks may be omitted where heads of fasteners are equivalent in size to the 1-inch diameter disks. Fasteners, when required, shall be spaced within 20 percent of the indicated spacing dimensions. There shall be no less than the total number of indicated fasteners in any 100 square feet area. Fastener pull-out resistance shall be not less than recommended for an I 90 Roofing System.

3.11 PROTECTION OF APPLIED ROOFING

At end of day's work or whenever precipitation is imminent, the terminated edge of built-up roofing shall be sealed with two full width strips of roofing sheets set in and coated with recommended bituminous cement. One half-width of strips shall be extended up and over the finished roofing and the other half-width extended out and onto the bare roof deck. Sealing strips shall be removed before continuing installation of roofing. To facilitate sealing, termination edges may be straightened with pieces of insulation board which shall be removed when work is resumed.

3.12 FLASHINGS

Flashings shall be provided over cants in the angles formed at walls and other vertical surfaces and where required to make the work watertight. Modified bitumen flashings described below shall be used, except where metal flashings are specified in other sections of the specifications. Flashings shall be provided and installed immediately after the top ply of sheet is placed.

3.12.1 Base Flashings

Base Flashings shall be as recommended by the modified bitumen roofing manufacturer's printed instructions and details. Unless otherwise indicated by the modified bitumen manufacture, the top of the base flashing shall be at least 8 inches above the roof membrane surface. Roofing strips shall be cut from the width of the rolls, and shall extend from the sheet-metal reglet or top of curb onto the roof at least 2 inches beyond the widest flashing ply. Strips shall be installed with selvage edges at right angles to the cant. Selvage laps shall be well cemented, and where possible, shall be shingled in a direction down slope or away from the prevailing wind. The top edge of all base flashing systems shall be nailed a maximum of 8 inches on center.

3.12.2 Strip Flashings

Sheet metal flashings, and gravel stops installed over the roofing top ply as required by other section of the specifications, shall be strip flashed with the number of layers of roofing sheets as shown on the manufacturer's detail drawings or as indicated in the printed instructions.

3.12.3 Valleys and Ridges

Unless otherwise indicated in the manufacturer's printed detail drawings or instructions, sheet plies shall continue across valleys and ridges and terminate approximately 12 inches from the valley or ridge. Exposed lap shall terminate on a line approximately 12 inches from, and parallel to the valley or ridge. Two plies of roofing sheets, 9-inch wide bottom ply, and 12-inch wide top ply, shall be successively mopped-in over each sheet line of termination.

3.13 ROOF CUT-OUT TESTS

Roof cut-out samples shall be taken and analyzed in accordance with ASTM D 3617 as directed by the Contracting Officer when there is reason to believe that deficiencies exist in the roofing membrane. When samples indicate deficiencies in the built-up roofing, corrective action shall be taken as directed.

3.14 CONTRACTOR QUALITY CONTROL

The Contractor shall establish and maintain a quality control procedure to assure compliance of the installed roofing with the contract requirements. Any work found not to be in compliance with the contract shall be promptly removed and replaced or corrected in an approved manner. Quality control shall include, but not be limited to, the following:

- a. Observation of environmental conditions; number and skill level of roofing workers; start and end time of various tasks; condition of substrate.
- b. Verification of compliance of materials before, during, and after installation.

- c. Inspection of condition of equipment and accuracy of thermometers and metering devices.
- d. Inspection of flashings, cants and curbs.
- e. Inspection of membrane placement, including edge envelopes, widths of starter sheets, laps, proper use of squeegee, and mechanical fastening.
- f. Inspection of application of bitumen, aggregate, and walkways.
- g. Inspection of embedment of aggregate for required weight and coverage.
- h. Cutout sampling and analysis as directed.

3.14.4 Reference Materials

The Contractor shall maintain copies of the manufacturer's printed instructions and drawings (typical details) which are available from all manufacturers within this industry. This material shall be a constant source of information to be used with the contract documents.

NOTE WELL: The contract documents are mandated to be generic in nature; however, the manufacturer must warrant the roof and the specific drawing details, instructions and recommendations of said manufacturer must be followed to maintain the warrantability of the roofing system.

3.15 WARRANTY

Manufacturer's standard warranty for 15 years shall be furnished. Warranty shall provide for repair or replacement of the complete roofing system, including insulation and flashing, if deterioration is caused by defects in materials or workmanship.

** End of Section **

SECTION 07530

ELASTOMERIC ROOFING (EPDM)

INDEX

1.1	SUMMARY (Not Applicable)	2.2	FLASHING
1.2	REFERENCES	2.3	NAILS AND FASTENERS
1.3	GENERAL REQUIREMENTS	2.4	EPDM MEMBRANE
1.4	SUBMITTALS	2.5	ACCESSORIES AND PIPE SEALS
1.5	PRODUCT DELIVERY AND STORAGE	2.6	OMITTED
1.6	WARRANTY	3.1	PREPARATION
2.1	ADHESIVES	3.2	INSTALLATION
		3.3	CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4637-87	Vulcanized Rubber Sheet Used in Single-Ply Roof Membrane
ASTM C 208-72	Insulating Board (Cellulosic (R 1982) Fiber), Structural

1.3 GENERAL REQUIREMENTS

Ethylene Propylene Diene Monomer (EPDM) roofing shall be mechanically fastened, ballast or fully adhered to the roof surfaces indicated. Roofing membrane shall be furnished in the largest sheets possible to minimize joints. Membrane, flashing, and adhesives shall be the standard products of a single manufacturer or as recommended by the roofing manufacturer. Membrane shall be free of any holes, lumps, and foreign material. Roofing operations shall be coordinated with sheet metal work so that flashings are installed to permit continuous roof-surfacing operations. Roofing operations shall also be coordinated with roof insulation work so that all insulation applied each day is weatherproofed the same day with the completed membrane.

1.4 SUBMITTALS

The following shall be submitted.

SD-04 Drawings

Drawings shall be submitted and shall show size of sheets, position of sheets and splices, flashing details, nailing patterns for the sheets, expansion joint details and a plan for protection of the roofing membrane from damage until completion of work by other trades.

SD-08 Statements

Manufacturer's instructions shall be submitted and shall include preparation, installation and splicing of elastomeric membrane.

SD-14 Samples

The following samples shall be submitted:

Membrane	1 by 1 foot section
Sealant	8 ounces
Splicing Cement	1 quart

1.5 PRODUCT DELIVERY AND STORAGE

Materials shall be delivered to the job site in the manufacturer's original, unopened packages, clearly marked with the manufacturer's name, brand name, and description of contents. Membrane flashing and adhesives shall be stored in clean, dry areas. Storage temperature for adhesives shall be between 60 degrees F and 80 degrees F.

1.6 WARRANTY

*2

Manufacturer's standard warranty for ~~1520~~ years shall be furnished. Warranty shall provide for repair or replacement of the complete roofing system, including insulation and flashing, if deterioration is caused by defects in materials or workmanship.

PART 2 PRODUCTS

2.1 ADHESIVES

Adhesives, splicing cements and sealants shall be as recommended by the roofing membrane manufacturer.

2.2 FLASHING

Flashing shall be of durable elastomeric material compatible with the membrane as recommended by the membrane manufacturer.

2.3 NAILS AND FASTENERS

Nails and fasteners shall be of the types and sizes best suited for the purpose and shall comply with roofing manufacturer's approved instructions.

2.4 EPDM MEMBRANE

EPDM membrane shall conform to ASTM D 4637, Type I, Class U 0.045 inch reinforced or minimum 0.060 inch thick.

2.5 ACCESSORIES AND PIPE SEALS

Accessories and pipe seals shall be of types and sizes recommended by the roofing membrane manufacturer.

2.6 OMITTED

2.7 SPLASH BLOCKS

Precast concrete splash blocks (3000 psi) - 15" by 30"

PART 3 EXECUTION

3.1 PREPARATION

The entire substrate construction of any bay or section of the building shall be completed before roofing is begun. Insulation and high density fiberboard over which EPDM roofing is installed shall conform to Section 07220 - ROOF INSULATION.

Surfaces on or against which membrane is applied shall be smooth, clean, and free from water, oil, grease, sharp edges and construction debris; all joints over 1/4 inch wide shall be sealed.

3.2 INSTALLATION

Installation shall be in accordance with the manufacturer's approved instructions for fully adhered EPDM roofing membrane. The method of mechanical attachment of the Insulation and the High Density Fiberboard shall be coordinated with the insulation and high rigid density fiberboard manufacturer. Approval of the mechanical attachment system shall be given by the EPDM Manufacturer prior to installation of any insulation or high density fiberboard.

3.2.1 Flashing

Edges of membrane, projections through the roof and changes in roof planes shall be flashed. The splice between the flashing and the membrane shall be completed before bonding the flashing to vertical surfaces. The splice shall be sealed a minimum of 3 inches on each side of the fasteners which attach the membrane to nailers. The installed flashing shall be nailed at the top of the flashing a maximum of 12 inches on center under metal counter-flashing or cap. Factory prefabricated pipe seals shall be used where possible.

3.2.2 Membrane

Membrane shall be mechanically fastened, ballast or fully adhered in accordance with the manufacturer's instructions and the following requirements. Membrane shall be spliced to adjoining sheets using minimum 3-inch wide laps. Direction of lap shall be such that water flows over lap. Membrane joints shall be free of wrinkles or fishmouth. Mating surfaces of joints shall be cleaned. Excess adhesive on splice edges shall be removed with solvents and joints made watertight. Joints shall be inspected over entire length after completion and defective areas resealed where necessary to provide a watertight installation. Damaged areas of membrane shall be removed and replaced with new materials, lapping underlying membrane by at least 3 inches on all sides.

3.2.3 Cutoffs

Cutoffs shall be installed if work is ended before roof section is complete. The insulation line shall be straightened using loose-laid cut insulation and the membrane shall be sealed to the roof deck. Flutes in metal decking shall be sealed off along the cutoff edge. Membrane shall be pulled free or cut to expose

the insulation when resuming work, and cut insulation sheets used for fill-in shall be removed.

3.2.4 Omitted

3.2.5 Protection of Finished Roofing

The Contractor shall provide protection of the roofing membrane from possible damage that may occur as a result of work by other trades. After completion of all work by other trades, the Contractor shall remove the protection and shall inspect the roof. Any damage shall be repaired in accordance with the recommendations of the roofing manufacturer.

3.2.6 Precast Concrete Splash Blocks

Splash blocks shall be installed.

3.3 CONTRACTOR QUALITY CONTROL

The Contractor shall establish and maintain a quality control procedure to assure compliance of the installed elastomeric roofing with the contract requirements. The procedure shall include a checklist of points to be observed. Any work found not to be in compliance with the contract shall be promptly removed and replaced or corrected in an approved manner. Quality control shall include, but not be limited to, the following:

- a. Observation of environmental conditions; number and skill level of roofing workers; start and end time of various tasks; readiness of substrate for application of roofing.
- b. Verification of compliance of materials before, during and after installation.
- c. Inspection of insulation, nailers, flashings, penetrations and work requiring coordination with roofing.
- d. Inspection of membrane placement, splicing, and anchoring.

A roofing technician responsible directly to the Contractor and experienced in the construction of elastomeric roofing and related work shall perform the quality control functions and be on the site whenever roofing operations are in progress. The actual quality control observations and inspections shall be documented and a copy of the documentation furnished to the Contracting Officer at the end of each day.

END

SECTION 07540

ELASTOMERIC ROOFING, FLUID APPLIED

PART 1 GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 177	(1985) Steady State Heat Flux Measurements Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
ASTM C 518	(1985) Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
ASTM D 412	(1987) Rubber Properties in Tension
ASTM D 579	(1983) Greige Woven Glass Fabrics
ASTM D 1621	(1973; Rev. 1979) Compressive Properties of Rigid Cellular Plastics
ASTM D 1622	(1983) Apparent Density of Rigid Cellular Plastics
ASTM D 2240	(1986) Rubber Property -- Durometer Hardness

UNDERWRITERS LABORATORIES, INC. (UL)

UL 790	(Oct. 5, 1983, 5th Ed.) Tests for Fire Resistance of Roof Covering Materials
--------	---

1.3 OMITTED

1.4 GENERAL REQUIREMENTS

1.4.1 Coordination

Roofing operations shall be coordinated with sheet metalwork so that flashings are installed to permit continuous elastomeric roofing operations.

1.4.2 Preparation

Surfaces to receive elastomeric roofing shall be dry and free of loose coatings, surface curing agents, dust, wax or other contaminants. Workmen shall wear clean, soft-soled, sneaker-type shoes.

1.4.3 Protection of Adjacent Surfaces

Surfaces near roofing operations shall be protected from spray of roofing materials.

1.5 SUBMITTALS

The following shall be submitted in accordance with Section 01330 SUBMITTALS:

SD-6, Manufacturer's Instructions:

Manufacturer's instructions for installation of the roofing system shall be submitted.

SD-14, Samples

The following samples shall be submitted:

Urethane foam	1 gallon each component
Protective Coating	1 quart each component
Foam Finish Texture	2 samples, each 2 feet square
Ceramic Granules	Sample of each color

SD-13, Certificates of Compliance

Certificates of compliance shall be submitted attesting that the foam and protective coating materials meet the specified requirements, and that the proposed roofing system has been tested and meets the requirements of Class A system in accordance with UL 790. In lieu of certificates, labels on the containers of foam and protective coating or listing by Underwriters Laboratories will be acceptable as evidence that the elastomeric roofing materials conform to these requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

Materials shall be delivered to the jobsite in their original unopened packages, clearly marked with the manufacturer's name, brand name, and description of contents. Materials shall be stored in clean, dry areas, away from excessive heat, sparks, and open flame. Storage area shall be ventilated to prevent build-up of flammable gases. Not more than half the shelf life shall have expired when materials are applied.

PART 2 PRODUCTS

2.1 URETHANE FOAM

Urethane foam shall be standard product of the manufacturer and containers shall be factory marked with the manufacturer's name or trademark. The cured foam shall have the following properties:

PROPERTY	ASTM TEST METHOD	VALUE
Density, pcf overall	ASTM D 1622	2.5 min., 3.5 max
Compressive Strength,	ASTM D 1621	40.0 min. psi parallel to rise
Thermal Conductivity (k factor) Btu/hr/ sq. ft./degree F/in.	ASTM C 177 or ASTM C 518	aged 0.16 max. (6 months)

2.2 ELASTOMERIC PROTECTIVE COATING

Coating shall consist of a finished coating of 30 mils minimum thickness applied in three coats, each a contrasting color and 10 mils minimum thickness. Coatings shall be silicone rubber or a two-component, chemically cured polyurethane, shall bond to urethane foam, and shall have the following properties:

PROPERTY	ASTM TEST METHOD	VALUE SILICONE	VALUE POLYURETHANE
Tensile Strength, psi	ASTM D 412	360 min.	1600 min.
Elongation, percent	ASTM D 412	150 min.	200 min.
Hardness, Type A	ASTM D 2240	50 to 75	80

2.3 CERAMIC GRANULES

Ceramic granules shall be No. 11 screen size, color as selected, dry, and free from dust.

2.4 SEALANTS

Sealants shall be as recommended by the coating manufacturer.

2.5 FABRIC

Fabric shall be ASTM D 579, style 1620.

PART 3 EXECUTION

3.1 INSTALLATION

Installation shall comply with the manufacturer's instructions including minimum thickness, except as otherwise specified. Concrete surfaces shall be cured a minimum of 30 days prior to application of foam.

3.1.1 Urethane Foam

Foam shall be sprayed on the prepared surface in 1/2-to 3/4-inch lifts. Time between lifts shall not exceed 4 hours. The finished surface shall be "verge of popcorn" or smoother. An approved sample shall be used as the standard for determining the acceptability of the foam finish. Foam shall be extended up walls and around roof projections to form cants and flashings that terminate at least 2 inches above finished roof surface. Cured foam shall be free from water, dust, oils, and other materials which would impair adhesion of the protective coating. No foam shall be allowed to stand overnight without a base protective coating. Foam shall cure at least 1 hour, unless otherwise recommended by the manufacturer before application of protective coating. Any nonadherence of foam to substrate shall be corrected and pinholes shall be finished flush with an approved sealant before finish coating is applied. Overspraying to correct an unacceptable surface condition will not be permitted. The finished roof surface shall not vary more than 1/2-inch when measured with a 10-foot straight edge parallel and perpendicular to the roof slope.

3.1.2 Protective Coating

Coating shall consist of base, intermediate, and top coats. Coatings shall be spray applied, unless otherwise approved. Minimum total dry film thickness of protective coating shall be 30 mils. The color of each coat shall contrast with the previous coat. Base or intermediate coats exposed for more than 24 hours shall be cleaned, thoroughly rinsed and dried, then given another covering of base coating before applying the top coat. No traffic will be allowed on finished areas for 24 hours after installation.

3.1.2.1 Base and Intermediate Coats

Base and intermediate coats shall have dry film thicknesses of not less than 10 mils. Coating shall completely cover the foam and extend up vertical surfaces 2 inches beyond foam. Coating shall be dry and clean before application of top coat.

3.1.2.2 Top Coat

Top coat shall be white or light gray color. Top coat shall be applied at right angles to the directions of the base coat application and shall fully cover the

base coat. Top coat dry film thickness shall be not less than 10 mils.

3.1.2.3 Penetrations

An additional 15 mils of coating shall be applied for 3 feet around roof access locations and 2 feet around all other roof penetrations. Thickness of coating at drain sumps shall be double that on the rest of the roof.

3.1.3 Granules

Granules shall be applied within 5 minutes of top coat application, using pressure equipment, at a rate of 40 pounds per 100 square feet. Granules shall be applied in a minimum of two passes made at right angles to each other. Finished granule system shall be uniform over entire surface with no apparent void areas.

3.1.4 Service Walks

Service walks shall be applied after the protective coating system has been completed and cured. Walks shall be nonwoven fiberglass fabric or 1/4-inch thick traffic topping board not less than 24 inches wide. Fabric shall be set into an additional layer of protective coating and smoothed with brush or roller and then be coated a minimum of 6 inches beyond each edge and covered with roofing granules. Traffic topping board shall be fully adhered to the coated surface.

3.2 EQUIPMENT CALIBRATION

Spray equipment for two-component systems shall be calibrated each day at start of operations, after each restart if spraying operations have been terminated for more than 1 hour, whenever there is a change in fan pattern or pressure, whenever slow curing areas are noticed, whenever a change is made in hose length or working height and after changeover between materials. Calibration shall consist of demonstrating that the equipment is adjusted to deliver components in the proper proportions. Calibration tests shall be done on cardboard or plywood on the roof adjacent to the area to be sprayed.

** End of Section **

SECTION 07600

SHEET METALWORK, GENERAL

PART 1 GENERAL

Items and materials shown herein cover a general requirement for various types of possible uses on a wide variety of potential roof projects. Specific items and materials for a particular project, are to be determined by the individual requirement for that project (e.g. - gutters/downspouts - aluminum, copper, etc).

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AIR MOVEMENT AND CONTROL ASSOCIATION (AMCA)

AMCA 500	(1989) Test Methods for Louvers, Dampers and Shutters
----------	---

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 167	(1991) Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
ASTM B 101	(1983; R 1988) Lead-Coated Copper Sheets
ASTM B 209	(1992a) Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B 221	(1992a) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
ASTM B 370	(1988) Copper Sheet and Strip for Building Construction
ASTM B 486	(1974; R 1985) Paste Solder
ASTM B 506	(1981; R 1986) Copper-Clad Stainless Steel Sheet and Strip for Building Construction
ASTM D 226	(1989) Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
ASTM D 543	(1987) Resistance of Plastics to Chemical Reagents
ASTM D 751	(1989) Coated Fabrics

ASTM D 822	(1989) Conducting Tests on Paint and Related Coatings and Materials Using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus
ASTM D 1784	(1990) Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds
ASTM D 2822	(1991) Asphalt Roof Cement
ASTM E 96	(1992) Water Vapor Transmission of Materials

FEDERAL SPECIFICATIONS (FS)

FS QQ-L-201	(Rev F; Am 2) Lead Sheet
FS UU-B-790	(Rev A; Int Am 1) Building Paper, Vegetable Fiber: Kraft, Waterproofed, Water Repellent and Fire Resistant)

SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
(SMACNA)

SMACNA-02	(1987) Architectural Sheet Metal Manual
-----------	---

1.2 GENERAL REQUIREMENTS

Sheet metalwork shall be accomplished to form weathertight construction. Work shall be installed without waves, warps, buckles, fastening stresses or distortion and shall allow for expansion and contraction. Cutting, fitting, drilling, and other operations in connection with sheet metal required to accommodate the work of other trades shall be performed by sheet metal mechanics. Exposed edges shall be hemmed. Bottom edges of exposed vertical surfaces shall be angled to form drips. Flashing at the end of a run shall be formed into a three dimensional configuration to direct water to the outside of the system. Joints shall be installed as specified in TABLE 3. Accessories and other items essential to complete the sheet metal installation, though not specifically indicated or specified, shall be provided. Roof flanges of sheet metal shall be set in bituminous cement over built-up roofing or shall be woven into shingle roofing before nailing. Application of bituminous strip flashing over roof flanges of various sheet metal items is covered in Section 07510 BUILT-UP ROOFING. Installation of sheet metal items used in conjunction with roofing shall be coordinated with roofing work to permit continuous roofing operations. Factory-fabricated components shall be packed in cartons marked with the manufacturer's name or trademark. Bulk materials from which items are field fabricated shall have manufacturer's name or trademark printed or embossed at frequent intervals to permit easy identification. Sheet metalwork pertaining to heating, ventilating, and air conditioning is specified in other sections.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Drawings showing weights, gauges, or thickness of sheet metal; type of material; joining, expansion-joint spacing, and fabrication details; and installation procedures. Materials shall not be delivered to the site until after the approved detail drawings have been returned to the Contractor.

SD-14 Samples

Samples of materials proposed for use, upon request.

1.4 DELIVERY, STORAGE, AND HANDLING

Materials shall be adequately packaged and protected during shipment and shall be inspected for damage, dampness, and wet- storage stains upon delivery to the jobsite. Materials shall be clearly labeled as to type and manufacturer.

Sheet metal items shall be carefully handled to avoid damage. Materials shall be stored in dry, weathertight, ventilated areas until immediately before installation.

PART 2 PRODUCTS

2.1 MATERIALS

Materials shall conform to the requirements specified below, and those given in TABLE 1. Where TABLE 1 lists more than one metal for a particular item, any listed metal may be used unless otherwise specified. Different items need not be of the same metal, except that if copper or copper clad stainless steel is selected for any exposed item, all exposed items shall be either copper or copper clad stainless steel.

2.1.1 Aluminum Extrusions

ASTM B 221, Alloy 6063, Temper T5.

2.1.2 Bituminous Cement

ASTM D 2822, Type I.

2.1.3 Fasteners

Materials shall conform to TABLE 2. Fasteners shall be the best type for the application.

2.1.4 Felt

ASTM D 226, Type I.

2.1.5 Plastic Hardsetting Sealant

As recommended by aluminum manufacturer.

2.1.6 Polyvinyl Chloride (PVC) Reglets

ASTM D 1784.

2.1.7 Sheet Metal

2.1.7.1 Aluminum Alloy Sheet and Plate

ASTM B 209, form, alloy, and temper appropriate for use.

2.1.7.2 Copper

ASTM B 370, Temper H 00.

2.1.7.3 Copper Clad Stainless Steel

ASTM B 506, Type 409 core. Thickness of copper on each side shall be 10 percent of total thickness.

2.1.7.4 Lead-Coated Copper

ASTM B 101, Type I, Class A. Copper shall weigh not less than that shown for the item designated in TABLE 1, before coating.

2.1.7.5 Lead Sheet

FS QQ-L-201, Grade C or D, hard, containing not less than 4 percent antimony.

2.1.7.6 Stainless Steel

Corrosion-resisting steel, hereinafter referred to as "stainless steel"; ASTM A 167, Type 302 or 304; fully annealed, dead soft temper.

2.1.8 Solder

ASTM B 486, Alloy 50B, for use with copper and Alloy 60B for use with stainless steel.

2.1.9 Slip Sheet

FS UU-B-790, Type I, Style 1b, Grade A.

2.1.10 Through-Wall Flashing

Flashing shall be copper, copper-clad stainless steel, lead or stainless steel having factory-formed deformations providing mechanical bond in mortar joints.

Minimum metal thickness shall be shown in TABLE 1 except lead shall be a minimum weight of 4.9 kg per square meter. 1 pound per square foot. When approved by the Contracting Officer, through-wall flashing may be one of the following:

- a. Electro-sheet copper not less than 0.14 kg, 5 ounces, factory coated both sides with acid- and alkali-resistant bituminous compound not less than 1.8 kg per square meter 6 ounces per square foot or factory covered both sides with asphalt- saturated cotton fabric, glass-fiber fabric, or with 18 kg 40-pound reinforced kraft paper bonded with asphalt.
- b. Electro-sheet copper completely encased by, and chemically and physically bonded to a sheet of lead, coated with asphalt mastic on both sides, bonded under pressure between two layers of asphalt-saturated woven cotton fabric or glass-fiber fabric. Total weight to be not less than 1.5 kg per square meter. 5 ounces per square foot.
- c. Electro-sheet copper not less than 0.14 kg, 5 ounces, bonded to lead foil not less than 0.6 kg per square meter 2 ounces per square foot covered both sides with asphalt mastic and bonded between 2-ply reinforced kraft paper.
- d. Stainless steel, Type 304, not less than 0.08 mm 0.003-inch thick, completely encased by and permanently bonded on both sides to 23 kg 50-pound high strength bituminized crepe kraft paper, using hot asphalt, heat, and pressure.
- e. Nonreinforced, waterproof, impermeable extruded elastomeric single ply sheeting not less than 0.76 mm 30-mils thick.
- f. 0.09 kg Three ounce copper core, with 0.05 mm 2 mils of dense, clear, polyethylene sheet bonded to each side of the copper.
- g. Electro-sheet copper completely encased by and physically bonded to a sheet of lead, coated on both sides with an elastic asphalt compound.
- h. Other through-wall flashing material may be used provided the following performance criteria are met:
 - (1) No cracking or flaking when bent 180 degrees over a 0.8 mm 1/32-inch mandrel and rebent at the same point over the same mandrel in an opposite direction at 0 degree C.
 - (2) Water vapor permeability shall not exceed 115 ng per Pa per second per square meter (2 perms) 2 perms when tested in accordance with ASTM E 96.
 - (3) Minimum breaking strength of 7 newtons per millimeter 40 pounds per inch width in the weakest direction when tested in accordance with ASTM D 751.
 - (4) No visible deterioration after being subjected to a 400-hour direct weathering test in accordance with ASTM D 822.
 - (5) There shall be no shrinkage in length or width and less than 5 percent loss of breaking strength after a 10-day immersion, per ASTM D 543, in 5 percent (by weight) solutions, respectively, of sulfuric acid, hydrochloric acid, sodium hydroxide or saturated lime (calcium hydroxide).

PART 3 EXECUTION

3.1 PROTECTION OF ALUMINUM

Aluminum shall not be used where it will be in contact with copper or where it will contact water which flows over copper surfaces. Aluminum that will be in contact with wet or pressure-treated wood, mortar, concrete, masonry, or ferrous metals shall be protected against galvanic or corrosive action by one of the following methods:

3.1.1 Paint

Aluminum surfaces to be protected shall be solvent cleaned and given a coat of zinc-molybdate primer and one coat of aluminum paint. Aluminum paint shall conform to Section 09900 PAINTING, GENERAL.

3.1.2 Nonabsorptive Tape or Gasket

Nonabsorptive tape or gasket shall be placed between the adjoining surfaces and shall be cemented to the aluminum surface using a cement compatible with aluminum.

3.2 SOLDERING, RIVETING, SEAMING, AND SEALING

3.2.1 Soldering

Soldering shall apply to copper, copper clad stainless steel, and stainless steel items. Edges of sheet metals, except lead coated material shall be pretinned before soldering is begun. Soldering shall be done slowly with well heated soldering irons so as to thoroughly heat the seams and completely sweat the solder through the full width of the seam. Edges of lead coated material to be soldered shall be scraped or wire-brushed to produce a bright surface, and seams shall have a liberal amount of flux brushed in before soldering is begun. Edges of stainless steel to be pretinned shall be treated with soldering acid flux. Soldering shall follow immediately after application of the flux. Upon completion of soldering, the acid flux residue shall be thoroughly cleaned from the sheet metal with a solution of washing soda in water and rinsed with clean water.

3.2.2 Riveting and Sealing

Joints in aluminum sheets 1.0 mm 0.040 inch or less in thickness shall be made mechanically and sealed with the sealant specified.

3.2.3 Seams

Flat-lock and soldered-lap seams shall finish not less than 25 mm 1-inch wide. Unsoldered plain-lap seams shall lap not less than 75 mm 3 inches unless otherwise specified. Flat seams shall be made in the direction of the flow.

3.3 COVERING ON MINOR FLAT, PITCHED, OR CURVED SURFACES

Unless otherwise specified or indicated, all minor flat, pitched, or curved

surfaces, such as crickets, bulkheads, dormers, and small decks, shall be covered or flashed with 450- by 600- mm 18- by 24- inch metal sheets and secured with cleats. One ply of felt covered with one ply of slip sheet shall be applied as underlayment on wood surfaces. Two cleats shall be placed on the long side and one cleat shall be placed on the short side. Seams in materials other than aluminum shall be locked and soldered. Seams in aluminum shall be locked and sealed with plastic hardsetting sealing material recommended by aluminum supplier.

3.4 CLEATS

A continuous cleat shall be provided where indicated or specified to secure loose edges of the sheet metalwork. Butt joints shall be spaced approximately 3 mm 1/8 inch apart. The cleat shall be fastened to the supporting construction with nails evenly spaced not over 300 mm 12 inches on centers. Where the fastening is to be made to concrete or masonry, screws shall be used and shall be driven in expansion shields set in concrete or masonry. The cleat for fascia anchorage shall be installed to extend below the supporting construction to form a drip and to allow the flashing to be hooked over the lower edge at least 20 mm 3/4 inch. The cleat shall be of sufficient width to provide adequate bearing area to insure a rigid installation. Where horizontal nailer is vented for insulation and the cleat is placed over masonry or concrete, the cleat shall be installed over 1.6 mm (1/16-inch) thick metal washers placed at screws. Washers shall be of metal that is electrolytically compatible with the continuous cleat.

3.5 DOWNSPOUTS

Downspouts shall be set plumb and not less than 25 mm 1 inch from the wall. Leaders shall connect gutters on overhanging eaves to downspouts. Leaders shall be set with a slope not less than 0.3 degree (5 mm per m) 1/16-inch per foot or more than 30 degrees below a horizontal line. Leaders shall fit over the outlet tube in gutter bottom and shall fit into and be riveted to the downspout. Rivet spacing shall be not more than 50 mm (2 inches). Strainers shall be set loosely in the eave tube opening in gutter. Joints between lengths of downspouts shall be made by telescoping the end of the upper lengths at least 20 mm 3/4 inch into the lower length. Downspouts terminating in drainage lines shall be neatly fitted into downspout boots and the joint filled with a portland cement mortar cap sloped away from downspout. Downspouts terminating at splash blocks or splash pans shall be provided with stock elbow-type fittings. Downspout hangers shall be provided adjacent to the joint at the top of each section of downspout except that the bottom section shall have an additional strap adjacent to the bottom joint when splash blocks or splash pans are required. Hangers shall be 1.5 by 25 mm 1/16 by 1 inch flat stock of the same material as the downspout.

3.6 EXPANSION JOINTS

Expansion joints shall be provided at 12.0 meter 40-foot intervals for copper and stainless steel and at 9.6 meter 32-foot intervals for aluminum, except that where the distance between the last expansion joint and the end of the continuous run is more than half the required interval spacing an additional joint shall be provided. Joints shall be evenly spaced. Extruded aluminum gravel stops and fasciae shall have expansion joints at not more than 3.6

meter 12-foot spacing.

3.7 FLASHINGS

Flashings shall be installed at intersections of roof with vertical surfaces and at projections through roof, except that flashing for heating and plumbing, including piping, roof, and floor drains, and for electrical conduit projections through roof or walls is covered in appropriate sections for such work. Cap flashings shall be turned around exterior corners of masonry or concrete walls at least 50 mm, 2 inches, shall be secured into masonry joints and into concrete with expansion anchors and sealed with No. 2 or 4 sealing compound. Cap and base flashing for exterior and interior corners shall be factory-fabricated units. Corner units shall have mitered joints, shall be installed with 75 mm 3-inch lap joint over flashings on each side. Unless otherwise indicated, through-wall flashing shall be terminated 13 mm 1/2 inch inside each exposed face of the wall. Except as otherwise indicated, cap flashings shall be provided over base flashings. Perforations in flashings made by masonry anchors shall be covered up by an application of bituminous plastic cement at the perforation. Flashing shall be installed on top of joint reinforcement.

3.7.1 Base Flashing

Base flashing shall extend out on the roof or horizontal surface not less than 100 mm. 4 inches. Metal base flashing shall be installed at locations indicated and shall be coordinated with roofing work. Metal base flashing shall be set in plastic bituminous cement over the roofing membrane, and nailed to nailing strip and shall be secured in place on the roof side with nails spaced not more than 75 mm 3 inches on centers.

3.7.2 Cap Flashing

Cap flashing shall be installed either in a reglet specified in paragraph "REGLETS" or shall consist of a two-piece combination unit with the receiver component built in the construction and the cap component interlocking not less than 40 mm 1-1/2 inches into the receiver. The flange of the receiver component installed into masonry shall extend not less than 100 mm 4 inches into the joint. Flange shall be located not less than 200 mm 8 inches nor more than 400 mm 16 inches above roofing not having cant strips or shall be located not less than 125 mm 5 inches nor more than 325 mm 13 inches above cant strip.

Cap flashing shall overlap metal base flashing not less than 75 mm 3 inches and when used with reglets shall extend into reglets not less than 30 mm. 1-1/8 inches. Where bituminous base flashings are provided, the cap flashing shall extend down as close as practicable to the top of the cant strip. Cap flashing shall be factory formed to provide spring action against the base flashing. Lower edge shall have a longitudinal V-type crimp or shall be folded under not less than 13 mm (1/2-inch). Cap flashing terminations shall be sealed.

3.7.3 Stepped Flashing

Stepped flashing shall be installed where sloping roofs surfaced with shingles abut vertical surfaces. Separate pieces of base flashing shall be placed in alternate shingle courses. Each piece of base flashing shall extend out onto

the roof at least 100 mm 4 inches and shall be nailed to the deck. The stepped base flashing shall extend up along the wall not less than 100 mm 4 inches and stop beneath the cap flashing or shall be anchored beneath wood siding in frame construction. Cap flashings shall be set in a reglet into masonry and concrete construction, and cap flashing shall lap over the flashing below not less than 75 mm. 3 inches. The stepped base flashing at vertical joints between the sections shall be lapped not less than 75 mm. 3 inches.

3.7.4 Through-Wall Flashing

Through-wall flashing includes sill, lintel, and spandrel flashing. The flashing shall be laid with a layer of mortar above and below the flashing so that the total thickness of the two layers of the mortar and flashing are the same thickness as the regular mortar joints. Flashing shall be one piece for lintels and sills. Lead shall not be used where the unsupported distance is more than 300 mm (12 inches).

3.7.4.1 Lintel Flashing

Lintel flashing shall extend the full length of lintel. It shall extend through the wall one masonry course above the lintels and shall be bent down over the vertical leg of the outer steel lintel angle not less than 50 mm, 2 inches, or shall be applied over top of masonry and precast concrete lintels. Bed joints of lintels at control joints shall be underlaid with sheet metal bond breaker.

3.7.4.2 Sill Flashing

Sill flashing shall extend the full width of the sill and not less than 100 mm 4 inches beyond ends of sill except at control joint where the flashing shall be terminated at the end of the sill.

3.7.5 Valley Flashing

Valley flashing shall be free from longitudinal seams and shall be of a width sufficient to extend not less than 125 mm 5 inches under the roof covering on each side. The sheets shall lap not less than 200 mm 8 inches in the direction of flow and shall be secured to roofing construction with cleats on each side. Cleats shall be spaced not more than 600 mm 24 inches on centers.

The exposed flashing shall be not less than 100 mm 4 inches in width at the top and shall increase 25 mm 1 inch in width for each additional 2400 mm 8 feet in length. Where the slope of the valley is 26 degrees or less (500 mm per meter or less), 6 inches or less per foot, or the intersecting roofs are on different slopes, an inverted V-joint 25 mm 1 inch high, shall be provided along the centerline of the valley, and the edge of the valley sheets shall extend 200 mm 8 inches under the roof covering on each side.

3.8 GRAVEL STOPS AND FASCIA

Sheets shall be fabricated without longitudinal joints except where two-piece fasciae are used when fascia depth exceeds 175 mm (7 inches). Provision for expansion shall be provided at joints. Factory fabricated internal and external corner units with mitered joints shall be provided. Roof flange and splice plate of the gravel stop and fascia shall extend out on the roof not

less than 100 mm, 4 inches, and shall be set in bituminous cement over the roofing felt. Roof flange shall be secured with nails spaced not greater than 75 mm 3 inches on centers located within 25 mm 1 inch of the outer edge of the flange. The fascia section shall not be face nailed except as specified for two-piece fasciae. The upper piece of two-piece fascia shall be the same as specified above except that the fascia depth shall be at least 90 mm, 3-1/2 inches, and it shall overlap the lower fascia not less than 50 mm. 2 inches. The lower piece shall be hooked 13 mm 1/2 inch over edge strip and splice plate and face nailed on 300 mm 12-inch centers 25 mm 1 inch below top of sheet. The upper fascia shall be hemmed 13 mm 1/2 inch at lower edge and shall be formed to fit tight against lower fascia. Either smooth or corrugated sheets may be used.

3.8.1 Extrusions

The extruded type of aluminum gravel stop and fascia shall be a factory fabricated, prepackaged, complete system with fastenings, of the style indicated. The system shall be installed in accordance with the manufacturer's recommendations and the other requirements herein specified.

3.8.2 Sheets, Smooth

Gravel stops shall be installed with 13 mm 1/2-inch space between sections. The cover plate shall be embedded in bituminous cement, nailed through the opening between the gravel stop sections and loose locked to the drip edge. The lower edge of fascia shall be hooked 19 mm 3/4 inch over a continuous cleat and bent outward at an angle of 30 degrees.

3.9 GUTTERS

Gutters shall terminate at least 13 mm 1/2 inch away from vertical surfaces. Supporting cleats shall be anchored to the structure at spacings not exceeding 400 mm. 16 inches. Gutter brackets and spacers shall be fastened to roof nailer by screws or deformed shank-type nails and shall interlock with or be fastened to the leading edge of gutter. Gutter spacers shall be 1.5 by 25 mm 1/16 inch by 1 inch flat-stock of the same material as the gutter. Brackets and spacers shall be alternated at not more than 900 mm 36 inches on centers depending upon the particular project requirements. Gutters shall be hung with high points at ends or equidistant from downspouts and shall have a slope of not less than 0.3 degrees (5 mm per m) (1/16 inch per foot).

3.10 LOUVERS

Louvers shall be fabricated of aluminum or stainless steel to the dimensions indicated and in accordance with the details shown in SMACNA-02 Architectural Sheet Metal Manual. Blades shall be accurately fitted and firmly secured to the frame by riveting and soldering if stainless steel and by riveting and sealing if aluminum. The edges of louver blades shall be folded or beaded for rigidity, and baffled to exclude driving rain. Louvers shall be provided with insect screens or bird screens. Louvers shall bear the AMCA Certified Ratings Seal for air performance and water penetration ratings as described in AMCA 500.

3.11 REGLETS

Reglets shall be a factory-fabricated product of proven design, complete with fittings and special shapes as may be required. Open-type reglets shall be filled with fiberboard or other suitable separator to prevent crushing of the slot during installation. Reglets shall be located not less than 200 mm 8 inches nor more than 400 mm 16 inches above roofing not having cant strips or shall be located not less than 125 mm 5 inches nor more than 325 mm 13 inches above cant strip. Reglet plugs shall be spaced not over 300 mm 12 inches on centers and reglet grooves shall be filled with sealant. Friction or slot-type reglets shall have metal flashings inserted the full depth of slot and shall be lightly punched every 300 mm 12 inches to crimp the reglet and cap flashing together.

3.12 SCUPPER LININGS

The interior of scupper openings shall be lined with sheet metal. The lining shall be formed to return not less than 25 mm 1 inch against both faces of the wall or parapet with the outside edges folded under 13 mm 1/2 inch less on the top and sides. The perimeter of the lining shall be approximately 13 mm 1/2 inch less than the perimeter of the scupper. The top and sides of scuppers on the roof-deck side shall be joined to base flashing by a locked and soldered joint. The bottom edge shall be joined by a locked and soldered joint to the base flashing and where required, shall be formed with a ridge to act as a gravel stop around the scupper inlet. Surfaces to receive the lining shall be coated with bituminous cement.

3.13 SPLASH PANS

Splash pans shall be installed where downspouts discharge on roof surfaces and at other locations as indicated. Pans shall be of size indicated. Pans and roof flanges shall be bedded in plastic bituminous cement and strip flashed.

3.14 CONTRACTOR QUALITY CONTROL

The Contractor shall establish and maintain a quality control procedure for sheet metal used in conjunction with roofing to assure compliance of the installed sheet metalwork with the contract requirements. Any work found not to be in compliance with the contract shall be promptly removed and replaced or corrected in an approved manner. Quality control shall include, but not be limited to, the following:

- a. Observation of environmental conditions; number and skill level of sheet metal workers; condition of substrate.
- b. Verification of compliance of materials before, during, and after installation.
- c. Inspection of sheet metalwork, for proper size and thickness, fastening and joining, and proper installation.

The actual quality control observations and inspections shall be documented and a copy of the documentation furnished to the Contracting Officer at the end of each day.

TABLE 1. SHEET METAL WEIGHTS AND THICKNESSES

Item Description	Copper, ounce per square foot	Aluminum, inch	Stainless steel, inch	Copper clad stainless steel, inch
Building expansion joints:				
Cap	16	0.032	0.015	0.015
Waterstop - bellows or flanged- U-type	16	---	0.015	0.015
Cleats (Continuous)	24	0.050	0.025	---
Covering on minor flat, pitched or curved surfaces	20	0.040	0.018	0.018
Downspouts, heads and leaders	16	0.032	0.015	0.015
Flashings:				
Base	20	0.040	0.018	0.018
Cap, stepped or valley	16	0.032	0.015	0.015
Gravel stops and fasciae:				
Extrusions	--	0.075	---	---
Sheets, corrugated	16	0.032	0.015	0.015
Sheets, smooth	--	0.050	0.018	0.018
Gutters (girth):				
Up to 15 inches	16	0.025	0.018	0.018
15 to 20 inches	16	0.032	0.018	0.018
20 to 25 inches	20	0.051	0.025	0.025
25 to 30 inches	24	0.064	0.031	0.031

TABLE 1. SHEET METAL WEIGHTS AND THICKNESSES

Item Description	Copper, ounce per square foot	Aluminum, inch	Stainless steel, inch	Copper clad stainless steel, inch
Gutter brackets (girth):				
Up to 15 inches	1/8"x1"	3/16"x1"	1/8"x1"	1/8"x1"
15 to 20 inches	1/4"x1"	1/4" x1"	1/8"x1-1/2"	1/8"x1-1/2"
20 to 24 inches	1/4"x1-1/2"	1/4" x2"	1/8"x2"	1/8"x2"
Gutter cleats and cover plates	16	0.032	0.015	0.015
Scupper lining	20	0.032	0.015	0.015
Strainers (wire gauge)	No. 9	No. 10	No. 12	---
Reglets(1)	10	---	0.010	0.010
Splash pans	16	0.040	0.018	0.018
Louvers (Width, inches):				
Up to 24 inches	--	0.040	0.025	---
24 to 36 inches	--	0.040	0.031	---
36 to 48 inches	--	0.064	0.037	---
48 to 60 inches	--	0.064	0.050	---
Copings	16	0.032	0.015	0.015
Pitch pockets	16	0.032	0.015	0.015
Through-wall, flashings above roof line	16	---	0.015	0.015

TABLE 1. SHEET METAL WEIGHTS AND THICKNESSES

Item Description	Copper, ounce per square foot	Aluminum, inch	Stainless steel, inch	Copper clad stainless steel, inch
Through-wall, below roof line, except as otherwise specified in paragraph MATERIALS	10	---	0.010	0.010

(1) May be polyvinyl chloride.

TABLE 2. FASTENER MATERIALS

To prevent corrosion, the indicated fastener materials shall be used with the following sheet metals:

Sheet Metal	Nails	Screws	Rivets	Bolts
Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
Copper	Copper	Bronze	Copper	Bronze
Copper Clad Stainless Steel	Copper or Stainless Steel	Bronze or Stainless Steel	Bronze or Stainless Steel	Bronze or Stainless Steel
Lead Coated Copper	Copper	Bronze	Bronze	Bronze
Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel

TABLE 3. SHEET METAL JOINTS

Item Designation	Type of Joint		Remarks
	Copper, Copper Clad Stainless Steel, Stainless Steel	Aluminum	
Building expansion joint at roof	1-1/4 inch single lock standing seam, cleated.	1-1/4 inch single standing seam, cleated.	-----
Cleats (Continuous)	Butt	Butt	-----
Flashings: Base	1-inch, flat locked, soldered.	1-inch flat locked, sealed.	Use hard setting sealant for locked aluminum joints
	3-inch lap for expansion joint.	3-inch lap for expansion joint.	Expansion joint for all metals shall have one continuous strip of 1/16-inch thick by 1/4-inch wide No. 7 sealant.
Cap-in Reglet	3-inch lap.	3-inch lap.	Seal groove with No. 2 or 4 sealant(a)
Cap - two- piece	Receiver 3-inch lap. Cap piece 3-inch lap.	-----	-----
Stepped	3-inch lap.	3-inch lap.	-----

TABLE 3. SHEET METAL JOINTS

Item Designation	Type of Joint		Remarks
	Copper, Copper Clad Stainless Steel, Stainless Steel	Aluminum	
Through-wall spandrel flashing (metal)	1-1/2 inch mechanical interlock.	-----	-----
Through-wall spandrel flashing (Coated or non-metal)	-----	-----	3 inch lap with sealant
Valley	6-inch lap, cleated.	6-inch lap, cleated.	-----
Gravel stops: Extrusions	-----	Butt with 1/2-inch space.	Use sheet flashing beneath and a cover plate.
Sheet, corrugated	Butt with 1/4-inch space.	Butt with 1/4-inch space.	Use sheet flashing beneath and a cover plate or a combination unit.
Sheet, smooth	Butt with 1/4-inch space.	Butt with 1/4-inch space.	Use 6-inch cover plate.
Gutters	1-1/2 inch lap, riveted and soldered.	1-inch flat locked, riveted, and sealed.	Use hard setting sealant for locked aluminum joints.

TABLE 3. SHEET METAL JOINTS

Item Designation	Type of Joint		Remarks
	Copper, Copper Clad Stainless Steel, Stainless Steel	Aluminum	
Pitch pockets	1-inch soldered lap.	1-inch flat locked and sealed.	Use hard setting sealant for locked aluminum joints.
Reglets	Butt joint.	-----	Seal reglet groove with No. 2 or 4 sealant.(a)

(a) Polyvinyl chloride type reglet shall be sealed with manufacturer's recommended butyl rubber sealant.

-- End of Section --

SECTION 07920

CAULKING AND SEALANTS

INDEX

1.1	SUMMARY (Not Applicable)	2.3	PRIMER
1.2	REFERENCES	2.4	BACKSTOP MATERIAL
1.3	GENERAL REQUIREMENTS	2.5	BOND-PREVENTIVE MATERIALS
1.4	SUBMITTALS	3.1	SURFACE PREPARATION
1.5	ENVIRONMENTAL REQUIREMENTS	3.2	OMITTED
1.6	DELIVERY AND STORAGE	3.3	APPLICATION
2.1	MATERIALS	3.4	CLEANING
2.2	SEALER		

PART 1 GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

FEDERAL SPECIFICATIONS (FS)

FS TT-C-00598	(Rev. C; Am. 1) Caulking Compound, Oil and Resin Base Type (for Building Construction)
FS TT-S-00230	(Rev. C; Am. 2) Sealing Compound: Elastomeric Type, Single Component (for Caulking, Sealing, and Glazing in Buildings and Other Structures)
FS TT-S-001543	(Rev. A) Sealing Compound: Silicone Rubber Base (for Caulking, Sealing, and Glazing in Buildings and Other Structures)

1.3 GENERAL REQUIREMENTS

Caulking and sealants shall be provided in joints as indicated or specified. The joint design, shape, and spacing shall be as indicated. Mixing shall be in accordance with instructions provided by the manufacturer of the sealants.

1.4 SUBMITTALS

Manufacturer's descriptive data including backstop material, primer and sealer shall be submitted for approval. Descriptive data for elastomeric sealants shall include shelf life, curing time, and application and use instructions for sealant and caulking.

Two cartridges or two quarts of each caulking and sealant specified herein shall be submitted for approval. The sample containers shall include the same information on the label as specified herein for containers delivered to the job. Certificates of compliance stating that the caulking and sealants conform to the specified requirements shall be submitted. Certificates shall include laboratory test reports showing that the caulking and sealants have been tested within the last 12 months.

1.5 ENVIRONMENTAL REQUIREMENTS

The ambient temperature shall be within the limits of 40 to 90 degrees F when the caulking and sealants are applied.

1.6 DELIVERY AND STORAGE

Materials shall be delivered to the job in the manufacturer's original unopened containers. The containers shall include the following information on the label: manufacturer, name of material, formula or specification number, lot number, color, date of manufacture, mixing instructions, shelf life, and curing time when applicable at the standard conditions for laboratory tests. Caulking compound or components outdated as indicated by shelf life shall not be used. Materials shall be carefully handled and stored to prevent inclusion of foreign materials or exposure to temperatures exceeding 90 degrees F. Sealant tape shall be handled and stored in a manner that will not deform the tape.

PART 2 PRODUCTS

2.1 MATERIALS

Materials shall conform to the respective specifications and other requirements specified. Each container brought to the jobsite with a different sealant formulation shall be marked for the intended use. For each intended use, the color shall be one of the manufacturer's standard colors as selected by the Contracting Officer.

2.1.1 No. 1 Caulking Compound

No. 1 caulking compound shall conform to FS TT-C-00598, Type I.

2.1.2 Omitted

2.1.3 Omitted

2.1.4 No. 4 Sealant

No. 4 sealant shall be a one-component, elastomeric-type compound conforming to FS TT-S-00230, Type II, Class B or FS TT-S-001543, Class B.

2.2 SEALER

Sealer for use with No. 1 caulking compound shall be aluminum paint.

2.3 PRIMER

Primer for No. 4 sealant shall be as recommended by the sealant manufacturer. Primer shall have been tested for durability with the sealant to be used and on samples of the surfaces to be sealed.

2.4 BACKSTOP MATERIAL

Backstop materials shall be resilient urethane or polyvinyl chloride foam, closed-cell polyethylene foam, closed-cell sponge of vinyl or rubber, polychloroprene tubes or beads, polyisobutylene extrusions, oilless dry jute, or rope yarn. Backstop material shall be nonabsorbent, nonstaining, and compatible with the sealant used. Tube or rod stock shall be rolled into the joint cavity. Preformed support strips for ceramic and quarry tile control-joint and expansion-joint work shall be polyisobutylene or polychloroprene rubber.

2.5 BOND-PREVENTIVE MATERIALS

Bond-preventive materials shall be pressure-sensitive adhesive polyethylene tape, aluminum foil or wax paper. At the option of the Contractor, backstop material with bond breaking characteristics may be installed in lieu of bond-preventive materials specified.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

3.1.1 General

The surfaces of joints to be sealed shall be dry. Oil, grease, dirt, chalk, particles of mortar, dust, loose rust, loose mill scale, and other foreign substances shall be removed from all joint surfaces to be sealed. Oil and grease shall be removed with solvent and surfaces shall be wiped with clean cloths.

3.1.2 Concrete and Masonry Surfaces

Where surfaces have been treated with curing compounds, oil, or other such materials, the materials shall be removed by sandblasting or wire brushing. Laitance, efflorescence and loose mortar shall be removed from the joint cavity.

3.1.3 Steel Surfaces

Steel surfaces to be in contact with sealant shall be sandblasted or, if sandblasting would not be practical or would damage adjacent finish work, the metal shall be scraped and wire brushed to remove loose mill scale. Protective coatings on steel surfaces shall be removed by sandblasting or by a solvent that leaves no residue.

3.1.4 Aluminum Surfaces

Aluminum surfaces of windows and door frames in contact with sealants shall be cleaned of temporary protective coatings. When masking tape is used for a protective cover, the tape and any residual adhesive shall be removed just prior to applying the sealant. Solvents used to remove protective coating shall be as recommended by the manufacturer of the aluminum work and shall be nonstaining.

3.2 OMITTED

3.3 APPLICATION

3.3.1 Paper Masking Tape

Paper masking tape shall be placed on the finish surface on one or both sides of a joint cavity to protect adjacent finish surfaces from primer or compound smears. Masking tape shall be removed within 10 minutes after joint has been filled and tooled.

3.3.2 Bond-Preventive Materials

Bond-preventive materials for No. 4 sealant shall be installed on the bottom of the joint cavity and other surfaces indicated to prevent the sealant from adhering to the surfaces covered by the bond-preventive materials. The materials shall be carefully applied to avoid contamination of adjoining surfaces or breaking bond with surfaces other than those covered by the bond-preventive materials.

3.3.3 Backstops

The back or bottom of joints constructed deeper than indicated shall be packed tightly with backstop material to provide a joint of the depth indicated. Where necessary to provide a backstop for caulking compound, the joint shall be packed tightly with rope yarn.

3.3.4 Primer

Primer shall be used on concrete masonry units, wood, or other porous surfaces in accordance with instructions furnished with the sealant. Primer shall be applied to the joint surfaces to be sealed. Surfaces adjacent to joints shall not receive primer.

3.3.5 No. 1 Caulking Compound

Compound shall be gun-applied with a nozzle of proper size to fit the width of joint indicated and shall be forced into grooves with sufficient pressure to expel air and fill the groove solidly. Caulking shall be uniformly smooth and free of wrinkles and shall be left sufficiently convex to result in a flush joint when dry. One coat of sealer shall be applied over joint after compound has dried sufficiently to develop a surface skin so as not to deform the surface of the joint.

3.3.6 No. 4 Sealant

Compound shall be gun-applied with a nozzle of proper size to fit the width of joint indicated and shall be forced into grooves with sufficient pressure to expel air and fill the groove solidly. Sealant shall be uniformly smooth and free of wrinkles. Joints shall be tooled slightly concave after sealant is installed. When tooling white or light-color sealant, dry or water-wet tool shall be used.

3.4 CLEANING

The surfaces adjoining the caulked and sealed joints shall be cleaned of smears and other soiling resulting from the caulking and sealing application as work progresses.

*** END ***

SECTION 09900

PAINTING, GENERAL

PART 1 GENERAL

The extent of these specifications are for touch-up and or complete exterior painting of fascia, rake, gutters, downspouts, soffits and roof related equipment.

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)

ACGIH-02	(1991) 1991-1992 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices
----------	---

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4214	(1989) Evaluating the Degree of Chalking of Exterior Paint Films
-------------	--

FEDERAL STANDARDS (FED-STD)

FED-STD 595	(Rev B) Colors Used in Government Procurement
-------------	---

MILITARY SPECIFICATIONS (MS)

MS MIL-S-12935	(Rev D) Sealer, Surface; for Knots
----------------	------------------------------------

STEEL STRUCTURES PAINTING COUNCIL (SSPC)

SSPC SP 1	(1982) Solvent Cleaning
SSPC SP 2	(1989) Hand Tool Cleaning
SSPC SP 3	(1989) Power Tool Cleaning
SSPC SP 7	(1991) Brush-Off Blast Cleaning

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Paint

The names, quantity represented, and intended use for the proprietary brands of materials proposed to be substituted for the specified materials.

1.3 ENVIRONMENTAL CONDITIONS

State, Federal and Local regulations shall apply in paint handling and disposal.

1.4 SAFETY AND HEALTH

Work shall comply with applicable Federal, State, and local laws and regulations, and with the ACCIDENT PREVENTION PLAN, including the Activity Hazard Analysis as specified in the CONTRACT CLAUSES. The Activity Hazard Analysis shall include analyses of the potential impact of painting operations on painting personnel and on others involved in and adjacent to the work zone.

1.4.1 Worker Exposures

Exposure of workers to chemical substances shall not exceed limits as established by ACGIH-02, or as required by a more stringent applicable regulation.

1.4.2 Toxic Compounds

Toxic compounds having ineffective physiological properties, such as odor or irritation levels, shall not be used unless approved by the Contracting Officer.

1.4.3 Training

Workers having access to an affected work area shall be informed of the contents of the applicable material data safety sheets (MSDS) and shall be informed of potential health and safety hazard and protective controls associated with materials used on the project. An affected work area is one which may receive mists and odors from the painting operations. Workers involved in preparation, painting and clean-up shall be trained in the safe handling and application, and the exposure limit, for each material which the worker will use in the project. Personnel having a need to use respirators and masks shall be instructed in the use and maintenance of such equipment.

1.4.4 Coordination

Work shall be coordinated to minimize exposure of building occupants, other Contractor personnel, and visitors to mists and odors from preparation, painting and clean-up operations.

PART 2 PRODUCTS

2.1 PAINT

The term "paint" as used herein includes emulsions, enamels, paints, stains, varnishes, sealers, cement-emulsion filler, and other coatings, whether used as prime, intermediate, or finish coat. Paint shall conform to the respective

specifications listed for use in the painting schedules at the end of this section.

2.1.1 Colors and Tints

Colors shall be as selected from FED-STD 595. Tinting of epoxy, and urethane, paints shall be done by the manufacturer. Stains shall conform in shade to manufacturer's standard color. The color of the undercoats shall vary slightly from the color of the next coat.

2.1.2 Mildewcide and Insecticide

2.1.3 Lead

Paints containing lead in excess of 0.06 percent by weight of the total nonvolatile content shall not be used.

2.1.4 Chromium

Paints containing zinc chromate or strontium chromate pigments shall not be used.

2.1.5 Volatile Organic Compound (VOC) Content

Paints shall comply with applicable state and local laws enacted to insure compliance with Federal Clean Air Standards and shall conform to the restrictions of the local air pollution control authority.

PART 3 EXECUTION

3.1 PROTECTION OF AREAS NOT TO BE PAINTED

Items not to be painted which are in contact with or adjacent to painted surfaces shall be removed or protected prior to surface preparation and painting operations. Items removed prior to painting shall be replaced when painting is completed. Following completion of painting, workmen skilled in the trades involved shall reinstall removed items. Surfaces contaminated by coating materials shall be restored to original condition.

3.2 SURFACE PREPARATION

Surfaces to be painted shall be clean and free of foreign matter before application of paint or surface treatments. Oil and grease shall be removed with clean cloths and cleaning solvents prior to mechanical cleaning. Exposed ferrous metals such as nail heads on or in contact with surfaces to be painted with water-thinned paints, shall be spot-primed with a suitable corrosion-inhibitive primer capable of preventing flash rusting and compatible with the coating specified for the adjacent areas.

3.2.1 Ferrous Surfaces

Ferrous surfaces including those that have been shop-coated, shall be solvent-cleaned. Surfaces that contain loose rust, loose mill scale, and other foreign substances shall be cleaned mechanically with hand tools according to SSPC SP 2, power tools according to SSPC SP 3 or by sandblasting according to SSPC SP 7. Shop-coated ferrous surfaces shall be protected from corrosion by treating and touching up corroded areas immediately upon detection.

3.2.2 Nonferrous Metallic Surfaces

Galvanized, aluminum and aluminum-alloy, lead, copper, and other nonferrous metal surfaces shall be solvent-cleaned in accordance with SSPC SP 1.

3.2.3 Wood Surfaces

Wood surfaces shall be cleaned of foreign matter. Wood surfaces adjacent to surfaces to receive water-thinned paints shall be primed and/or touched up before applying water-thinned paints. Small, dry seasoned knots shall be scraped, cleaned, and given a thin coat of commercial knot sealer before application of the priming coat. Pitch on large, open, unseasoned knots and all other beads or streaks of pitch shall be scraped off, or, if it is still soft, removed with mineral spirits or turpentine, and the resinous area shall be thinly coated with knot sealer.

3.2.4 Previously Painted Surfaces

Previously painted surfaces specified to be repainted or damaged during construction shall be thoroughly cleaned of all grease, dirt, dust or other foreign matter. Blistering, cracking, flaking and peeling or other deteriorated coatings shall be removed. Slick surfaces shall be roughened. Damaged areas such as, but not limited to, nail holes, cracks, chips, and spalls shall be repaired with suitable material to match adjacent undamaged areas. Edges of chipped paint shall be feather edged and sanded smooth. Rusty metal surfaces shall be cleaned as per SSPC requirements. Solvent, mechanical, or chemical cleaning methods shall be used to provide surfaces suitable for painting. Chalk shall be removed so that when tested in accordance with -ASTM D 4214-, the chalk resistance rating is no less than 8. New, proposed coatings shall be compatible with existing coatings. If existing surfaces are glossy, the gloss shall be reduced.

3.3 CLEANING

Cloths, cotton waste and other debris that might constitute a fire hazard shall be placed in closed metal containers and removed at the end of each day. Upon completion of the work, staging, scaffolding, and containers shall be removed from the site or destroyed in an approved manner. Paint and other deposits on adjacent surfaces shall be removed and the entire job left clean and acceptable.

-- End of Section --